CITY OF YARRA

Technical Notes

City of Yarra Public Domain Manual

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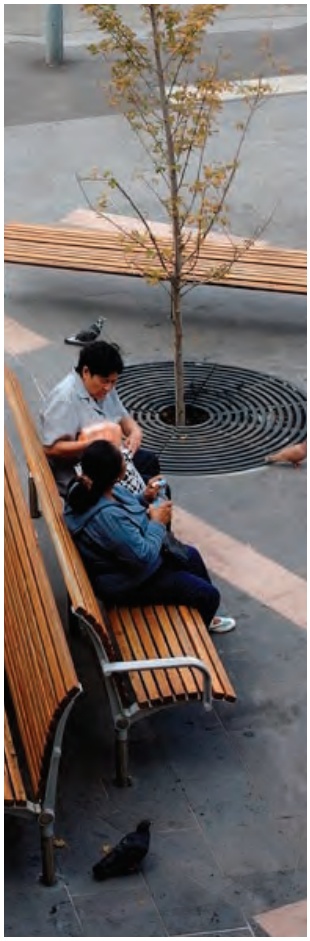
Introduction

Purpose

These technical notes provide guidance on the use of standard design treatments and details throughout the City of Yarra. These notes are to be used to guide designers, installers and contractors on the way to use these design treatments and details in public spaces within the City of Yarra. The Technical Notes reference the Yarra Standard Drawings which are the construction details to be used for all standard works within the public domain of Yarra for tender documentation and construction purposes.

The Technical Notes provide a guide for the consistent design and maintenance of parks and urban spaces throughout the municipality, whilst acknowledging that some spaces have their own distinctive character.

Not every street and space can be designed individually, nor do they need to be. The Technicial Notes provide enough information to select and locate standard items for installation/replacement of street furniture elements, and for the design concept and design development stages (including the preparation of cost estimates) of larger or more complex spaces.



The value of standard details

Standardised design treatments are desirable for several reasons:

- Locally based standards promote a cohesive character and a strong sense of place.
- Standardised details help to realise large-scale integrated designs, despite the frequent need to implement works in many small stages.
- Consistent use of the same details in the same situations makes the city easier to navigate, especially for pedestrians who are blind or vision impaired and for pedestrians with other disabilities.
- When replacements are required, standard elements help to ensure the replacement fits with the original design.
- Consistency supports efficient management and maintenance.
- Economies of scale make the supply of street furniture less costly.
- Established standards have been tested and proven to meet functional requirements under demanding conditions.

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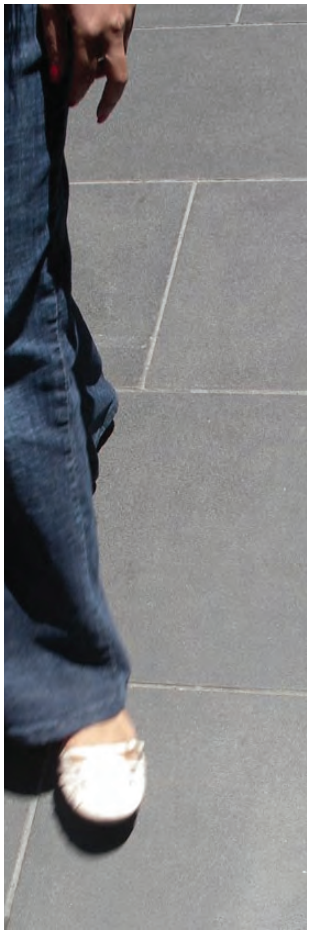
How to use the technical notes

The City of Yarra Public Domain Manual – **Technical Notes** is designed to be an evolving document. It has been formatted to enable it to be read as a whole or as a series of individual sections or subsections. Pages may be added and altered in the future as new treatments and details are developed or older ones improved or discontinued.

The Technical Notes firstly set out the overall design principles for streetscape design in Yarra and overall standards applicable to the streetscape design and include checklists which should be used to ensure that all relevant matters are taken into account as part of the design and construction process.

The majority of the notes then comprise specific information regarding the application, supply, materials, installation, and maintenance of a series of standard streetscape elements.



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Design Principles

Design Principles for Yarra Streetscapes

Despite the current value of Yarra's existing character, it is important to make it better. The emphasis should be on the quality of the whole municipality, not just special places. The aim is to create an attractive, comfortable and engaging city, wherever people find themselves.

The following principles form the basis for the detailed information which follows in relation to specific streetscape elements.

Making a more sustainable city

Sustainability should be addressed in urban improvements by:

- Encouraging walking as a primary means of local transport.
- Encouraging bicycle riding and the use of public transport.
- Encouraging the use of energy-efficient public lighting.
- Planting native and indigenous tree species to support biodiversity and a reduction in water usage.
- Planting trees for shade to make public spaces more comfortable and to assist in climate control within buildings.
- Applying water sensitive urban design principles (WSUD) wherever possible. This includes the provision of porous surface treatments, the retention and re-use of stormwater, rain gardens for garden beds and new street trees, where possible.
- Continued use of repaired/restored street furniture in the street in which it originated. They should not be used to fill gaps or placed in other streets.
- Use of recycled materials, where possible, including trialling of the use of the plastic batten seat.
- Use of robust and simple street funiture elements which are of high quality and are long lasting.
- Use where possible of sustainable material sources with low embodied energy.

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Design Principles

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Design Principles

Design Principles for Yarra Streetscapes

Conserving urban heritage

Large areas within the municpality are protected under the Yarra Planning Scheme by Heritage Overlays and the Development Guidelines for Heritage Places. Local design standards are intended to protect the urban heritage. Principles applicable to streetscape design in areas covered by the Heritage Overlays include:

- Consult the Statement of Significance for the Heritage Overlay.
- Minimise change of significant fabric, by not removing, altering or relocating significant or contributory features.
- Reconstruct original details such as bluestone kerbs with new sawn bluestone, to acknowledge the original heritage, while not attempting to re-create it.

Inner Melbourne character

The public domain of inner Melbourne has distinctive design qualities which contribute to this urban character and which should be considered in the design and construction of urban improvements:

- Formal geometry – orthogonal tight geometric layouts, rather than curvilinear design.
- Simplicity of design – linear layouts with no 'fussy' detail, avenues of consistent regularly spaced trees rather than mixed intermittent plantings.
- Continuity of streets – streets with a consistent design for the full length.
- Limited palette of materials – the almost universal use of asphalt, bluestone and more recently concrete.
- Hard edged rather than rustic – dressed bluestone kerb stones with regularly laid bluestone pitcher gutters.
- Long lasting robust treatments and details – durable, readily available materials.

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Design Principles

Design Principles for Yarra Streetscapes

Consistency across inner Melbourne (IMAP)

Similar projects to establish design standards for the public realm have been undertaken by other municipalities in the inner Melbourne area (Yarra, Melbourne, Port Phillip, and Stonnington). The Technical Notes have been prepared to reflect this desire for a greater co-ordination of streetscapes and street furniture design to reinforce a sense of place for inner Melbourne.

This is the key objective of the Inner Melbourne Action Plan (IMAP). The character of inner Melbourne is defined in the publication Liveable, Walkable Melbourne prepared under the Inner Melbourne Action Plan (IMAP).

The City of Yarra is typical of this inner Melbourne character. However there are localised contrasts between the Hoddle grid areas of North Carlton, Princes Hill and the spacious streets of North Fitzroy and the less regular street patterns and narrower streets of Fitzroy, Collingwood and parts of Richmond and Cremorne.

The design of the public domain in Yarra, while responding to the broad character of inner Melbourne, needs to reflect the localised variations within Yarra.

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Design Principles

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Design Standards

Design Standards and Checklists

DESIGN STANDARDS

The following standards apply to the use and design of the streetscape elements identified in these technical notes. These standards should be used as a checklist when designing in the public realm.

Consider the wider context and work towards a long term plan

- There should be a clear relationship between the site and its context to contribute to the cohesiveness and existing character of the public realm.
- If a general change in the character is called for, it should happen consistently, incrementally and systemmatically.
- Street furniture elements should match the surrounding existing street furniture (provided it is included in the Technical Notes).
- Design should encourage people to walk, ride bicycles and use public transport.
- Environmentally sustainable design, including water sensitive urban design (WSUD) should be applied.

Consider the users of the space

- Consider existing and future pedestrian movement lines. Street furniture elements can obstruct or block pedestrian flows, but also can protect pedestrians from traffic, or encourage people to move through a space in a particular way and encourage people to inhabit/reinhabit a public space.
- Where possible, in larger spaces, provide a variety of seating options, to accommodate a range of users with varying mobility and vision.
- All surface treatments must meet Australian Standards for slip resistance and equal access.
- Maintain natural surveillance lines to avoid hidden corners and promote public safety through design.

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Design Standards

Design Standards and Checklists

Use standard colours and finishes

- All street furniture should have an unpainted (ie not powder–coated) brushed, stainless steel finish. The exception is park seats and rubbish bins in parks, safety bollards and heritage bollards. Galvanised finish may also be appropriate in park settings.
- New surface treatments should generally match or complement the local adjacent surface materials, including kerbs.
- Where there is more than one piece of street furniture, the same type with the same materials should be used.
- Use long lasting robust treatments and details.
- Use a limited palette of materials and colours.

Ensure appropriate and safe setbacks from kerbs

Street furniture should be set back from the face of the kerb for traffic safety and to allow access to parked vehicles, as follows:

- 600mm setback for all elements or as otherwise stated below or on the relevant Technical Notes sheet.
- 700mm minimum setback from loading zones, except for light poles and parking signs.
- 400mm setback for seats.
- 1500mm from disabled parking bays, except for light poles and parking signs.

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Design Standards

Design Standards and Checklists

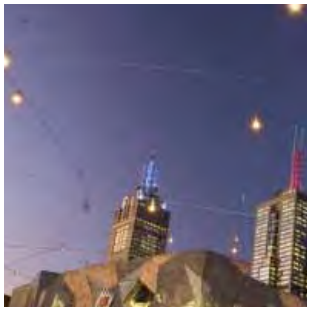
Clear paths along building lines

Ensure a continuous accessible path of travel along the building line of all footpaths of:

- A minimum of 1500mm wide for footpaths less than 3500mm where footpath width permits.
- A minimum of 1800mm wide for footpaths more than 3500mm.
- In public squares and spaces, locate street furniture elements a maximum of 300mm from buildings or set back a sufficient distance to permit pedestrian access between the element and building.

Provide a logical and simple layout

- Prevent clutter by avoiding an unnecessary variety of materials and details.
- Group objects in a logical manner, in relation to materials, alignment and location. Use regular and equidistant spacings, unless the design dictates otherwise.
- Maintain the areas's characteristic layout and geometry to protect its visual character.
- Keep the continuity of the existing street patterns.
- Maintain regular kerb alignments and setbacks.



Non-standard use of elements

Non-standard streetscape elements may be used where:

- Existing features with particular heritage significance are to be conserved and may require non-standard detailing to accommondate this.
- The location has a distinctive character in which the standard street furniture elements do not fit visually or physically.
- Particular, or high profile, urban spaces have been identified for a design or re-design of the entire space, as a distinct local focal point.

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Design Standards

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Design Checklists

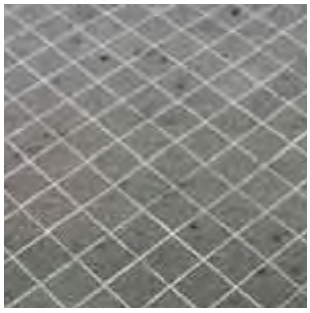
Design Standards and Checklists

DESIGN AND CONSTRUCTION CHECKLIST

When designing public spaces, streetscapes or installing street furniture the following checklists should be used.

Understanding the site:

- ☐ Locate existing service pits, underground pipes, fire hydrants, extent of existing footings, extent of existing tree roots, overhead powerlines, verandahs, canopies, overhead tree canopies.
- ☐ Locate all buildings (noting building uses and pedestrian flows), kerbs and pram crossings.
- ☐ Check existing street furniture elements, existing paving surface treatments, existing street tree species for type, locations and spacings.
- ☐ Determine requirements for connections to existing services.
- ☐ Check traffic conditions; parking bay areas, location of disabled carpark spaces, bike lane locations, truck turning circles, location of existing bollards, view–lines for traffic at corners and intersections, visibility to existing traffic signs, bicycle hoop locations, locations where bikes have been parked against poles and other street funiture, proximity to public transport, tram stops and train stations.
- ☐ Check current street light locations and lighting levels.
- ☐ Check existing grades and space for pedestrian movement, particularly with regard to access for those with limited mobility.
- ☐ Check the drainage flow, stormwater pit locations, ponding areas and location of spoon drains.
- ☐ Check direction of stormwater run-off and potential run-off catchment for the potential WSUD solutions for new street trees and garden beds.
- ☐ Check soil types and check for soil contamination, particularly in industrial or former industrial areas.
- ☐ Contact **Dial Before You Dig** (tel. 1100) for all existing services information.
- ☐ If required, check if there is an existing survey for the location.



CONTACT DIAL BEFORE YOU DIG (**TEL. 1100**)

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Design Standards

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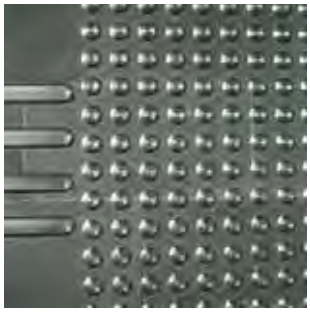
Design Checklists

Design Standards and Checklists

DESIGN AND CONSTRUCTION CHECKLIST

Starting to design:

- ☐ Check which Planning Scheme zone(s) and overlay(s) are applicable to the project area and whether a planning permit would be required for the proposed works.
- ☐ Check Council policies and strategies including: structure plans, the Yarra Open Space Strategy, urban design frameworks, Strategic Transport Statement, Local Area Traffic Management Schemes (LATMS), and the City of Yarra Encouraging and Increasing Walking Strategy.
- ☐ If tree planting is proposed, check the Yarra Open Space Street Tree Strategy for the appropriate tree selections.
- ☐ Prepare a design brief for the space if the site is significant.
- ☐ Prepare concept plans or options.
- ☐ If the site is subject to the Heritage Overlay, you should hold a preliminary consultation with a statutory planner, heritage advisor and urban designer.
- ☐ If the area is not subject to the Heritage Overlay, you should have a preliminary consultation with an urban designer.
- ☐ Liaise with other areas of Council when required.
- ☐ Refine concept plans and options after consultation with relevant Council Divisions and Units.
- ☐ Prepare a Communications Plan for the project.
- ☐ Meet with trader groups and other stakeholders.
- ☐ Refer to requirements for compliance with the Disability Discrimination Act.



PREPARE CONCEPT PLANS OR OPTIONS

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Design Checklists

Design Standards and Checklists

DESIGN AND CONSTRUCTION CHECKLIST

When preparing developed design and documentation:

- ☐ Consult on final design.
- ☐ Through mail–outs, brochures, community consultation meetings and other actions outlined in the Communications Plan, notify and liaise with the public and stakeholders.
- ☐ Obtain sign off from internal officer referrals, including disability and public safety officer.
- ☐ Brief Councillors as required.
- ☐ Undertake audits including disability, road safety, public safety or road safety if required.
- ☐ Prepare design documentation.
- ☐ Lodge planning application if required.

CONSULT ON FINAL DESIGN

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Design Standards

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3.1.1

Street Furniture

Timber Seat (with back)

Application

Seats with backs and arm rests are preferable in most locations. The timber seat is suitable for all urban situations, such as plazas, streetscapes, small parks and other urban spaces. In larger parks, the more relaxed style park seat (3.1.4) is preferred. This seat is also suitable for use along footpaths where space is limited and may be used with matt black recycled plastic battens.

Known Supplier

JC Brown Engineering
102 Barwon Terrace, South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description

City of Port Phillip Timber Seat with Back (or approved equivalent)

Materials and Dimensions

Timber battens with a cast aluminium frame. Alternatively, recycled matt black battens with cast aluminium frame. **Overall dimensions:**1894mm x 633mm. **Seat height:** 431mm **Total height:** 856mm

Installation

Locate timber seat 600mm from the kerb line of footpaths. Allow 300mm maximum setback when seat is located with its back to an existing building in squares or public spaces (other than footpaths). In sloping locations, assess on site whether the seat should follow slope. Install seat with a gib key to allow for easy removal, without adversely affecting the surrounding pavement.

Refer to

- Timber seat (with back) page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Details

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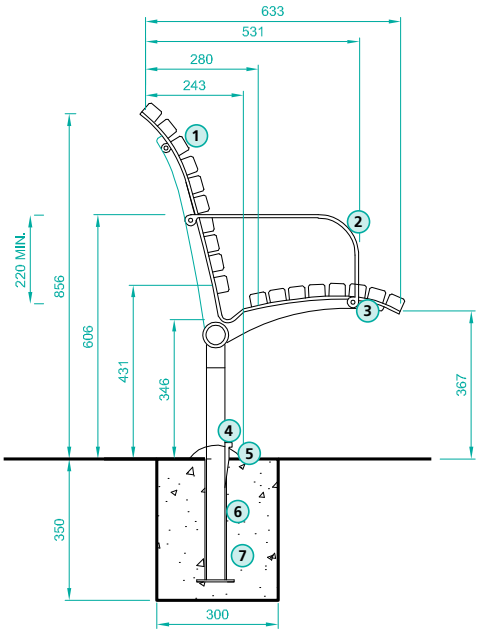
Technical Notes

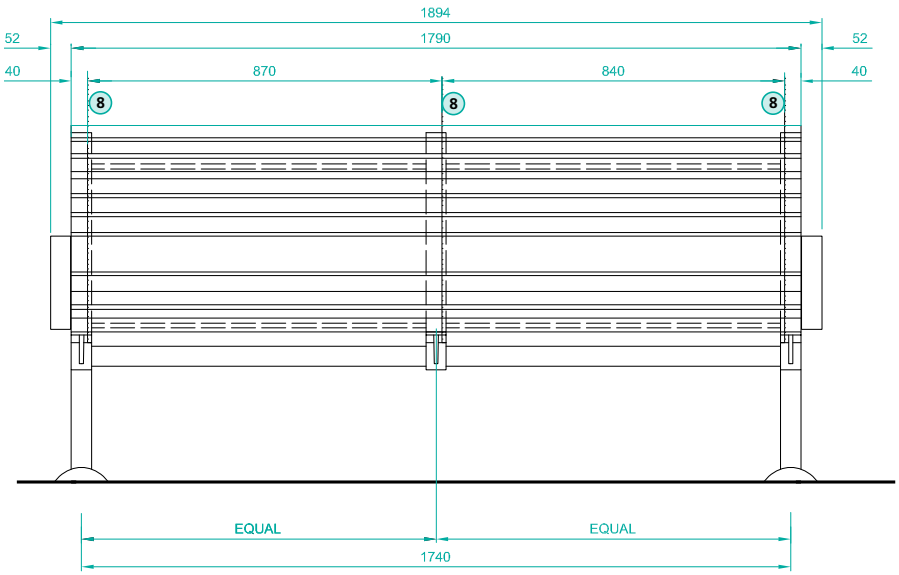
3.1.1

Street Furniture

Timber Seat (with back)



END ELEVATION (not to scale)



FRONT ELEVATION (not to scale)

1. Timber or plastic recycled battens @ 50mm centres TPY.
2. Cast aluminium grab rail.
3. Cast aluminium frame.
4. Steel gib key.
5. Stainless steel spun base plate.
6. Fabricated steel socket.
7. 300mm square concrete footings.(shown in section)
8. Batten fixing screws.

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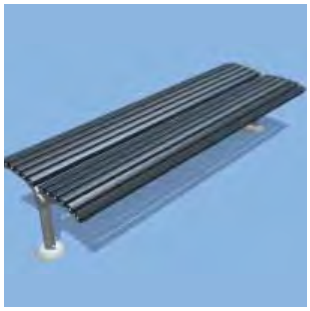
3.1.2

Street Furniture

Timber Seat (no back)

Application

The timber seat (no back) should be used only where people are expected to sit for intervals of less than 15 minutes. This is usually near tram or bus stops, busy shopping areas and along footpaths. The timber seats with and without backs (from the same suite of street furniture from JC Brown) can be used together in larger public spaces to allow for a range of seating options, while maintaining an overall consistent appearance. In all other situations, it is preferable that a seat with a back and arm rests is used. When located along footpaths, it can be used to direct/control pedestrian movement, such as adjacent to tram stops. The same seat may be used with matt black recycled plastic battens.



Known Supplier

JC Brown Engineering
102 Barwon Terrace, South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description

City of Port Phillip Timber Seat with no Back (or approved equivalent)

Materials and Dimensions

Timber battens with a cast aluminium frame. **Overall dimensions:** 1750mm x 620mm. **Seat/total height:** 405mm.

Installation

Locate timber seat (no back) 600mm from the kerb line in footpaths. Allow 300mm maximum setback when seat is located next to an existing building in squares and public spaces (other than footpaths). In sloping locations, assess on site whether the seat should follow slope. Install seat with a gib key to allow for easy removal, without adversely affecting the surrounding pavement.

Refer to

- Timber seat (no back) page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Details

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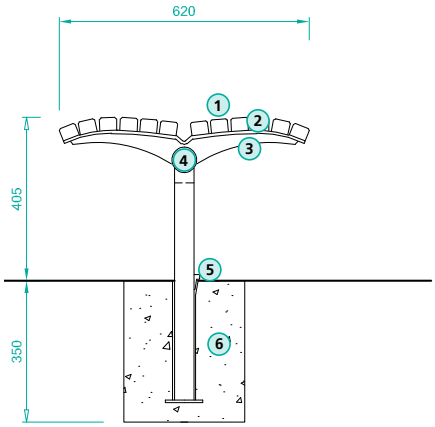
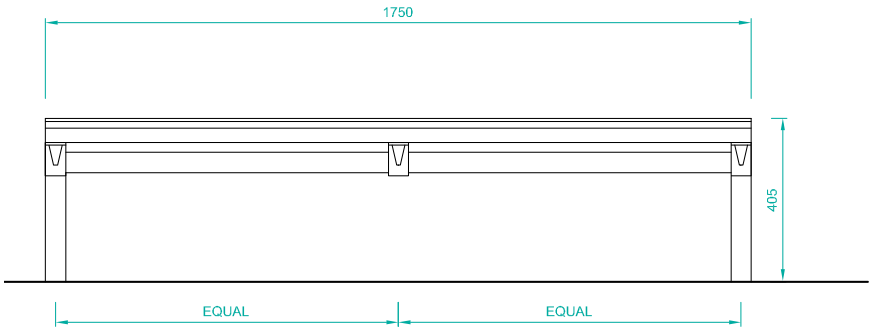
3.1.2

Street Furniture

Timber Seat (no back)



END ELEVATION (not to scale)



FRONT ELEVATION (not to scale)

1. Timber battens 40mm x 30mm.
2. Cast aluminnium seat power coated.
3. Solid 16mm diameter rods welded.
4. 40mm x 20mm solid stainless steel bar welded.
5. Gib key and folded socket.
6. 300mm square concrete footing.(shown in section)

NOTE: Concrete footing can be set down from ground level to allow for paving over.

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Technical Notes

3.1.3

Street Furniture

Stainless Steel Seat

Application

The stainless steel seat (no back) should only be used where people are expected to sit for intervals of less than 15 minutes. This is usually near tram or bus stops, busy shopping areas and along footpaths. In all other situations, it is preferable that a seat with a back and armrests is used and if possible arm rests. When located along footpaths, it can be used to direct/control pedestrian movement, such as adjacent to tram stops.

The stainless steel seat should continue to be used in locations where it has already been used (ie along Bridge Road) for consistency. It is also suitable for locations where other stainless steel street furniture elements are used. It is preferably not for use in locations subject to full summer sun.

Know Supplier

JC Brown Engineering
102 Barwon Terrace, South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description

Stainless Steel Bench Seat (or approved equivalent)

Materials and Dimensions

Stainless steel
Overall dimensions: 2045mm x 700mm **Seat/total height:** 420mm

Installation

Locate stainless steel seat (no back) 600mm from the kerb line in footpaths. Allow 300mm maximum setback when seat is located next to an existing building in squares and public spaces (other than footpaths). In sloping locations, assess on site whether the seat should follow slope. Install seat with a gib key to allow for easy removal, without adversely affecting the surrounding pavement.

Refer to

- Stainless steel seat (no back) page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

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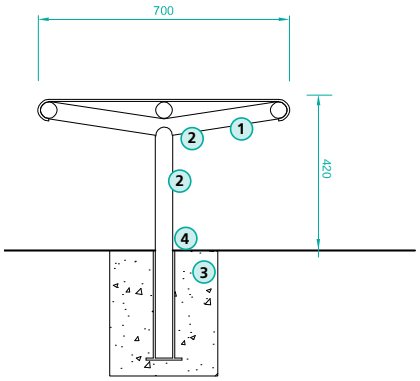
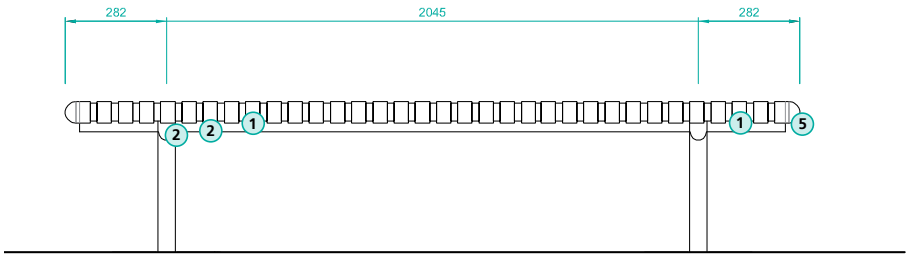
Street Furniture

Stainless Steel Seat



END ELEVATION (not to scale)



FRONT ELEVATION (not to scale)

1. 40mm x 5mm stainless steel bar.
2. 48.3mm diameter x 3.2mm stainless steel pipe.
3. 300mm square concrete footing.(shown in section)
4. Fix seat in place with socket and gib key.
5. Cast aluminium capping.

NOTE: Concrete footing can be set down from ground level to allow for paving over.

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3.1.4

Street Furniture

Park Seat

Application

The park seat is for general use in parks and other locations where there is a generous amount of space. Elsewhere, the timber seat (with back) can be used, where space is limited or tight, such as footpaths. Use the seats with a steel (no powder coating) finish in streetscapes and urban spaces and the green powder coated frame for parks only. Galvanised finish may be suitable in some park locations.

Known Supplier

JC Brown Engineering
102 Barwon Terrace, South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description

City of Melbourne Park Seat (or approved equivalent)

Materials and Dimensions

Timber battens with a galvanised steel frame.
Brunswick green powder coated frame is optional for parks.
Overall dimensions: 2250mm x 850mm **Seat height:** 428mm
Total height: 837mm

Installation

Allow 300mm maximum setback when seat is located next to an existing building. Install seat with a gib key to allow for easy removal, without adversely affecting the surrounding pavement. Seat is to be installed on an insitu concrete slab, which should be coloured to match the surrounding pavement and to match the plan dimensions of the seat (typically charcoal grey) when located in turf areas.

Refer to

- Park Seat page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

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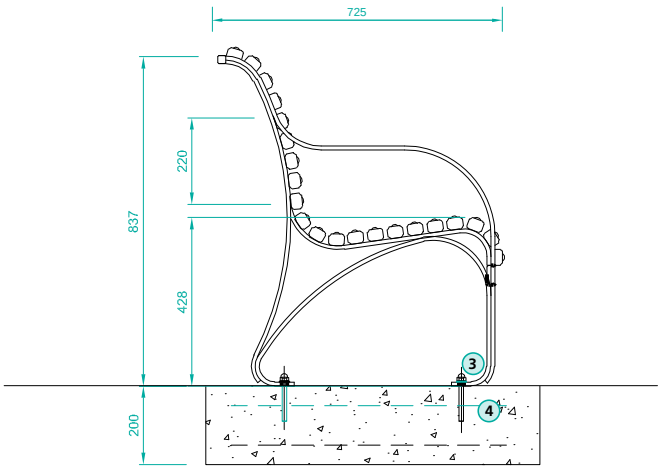
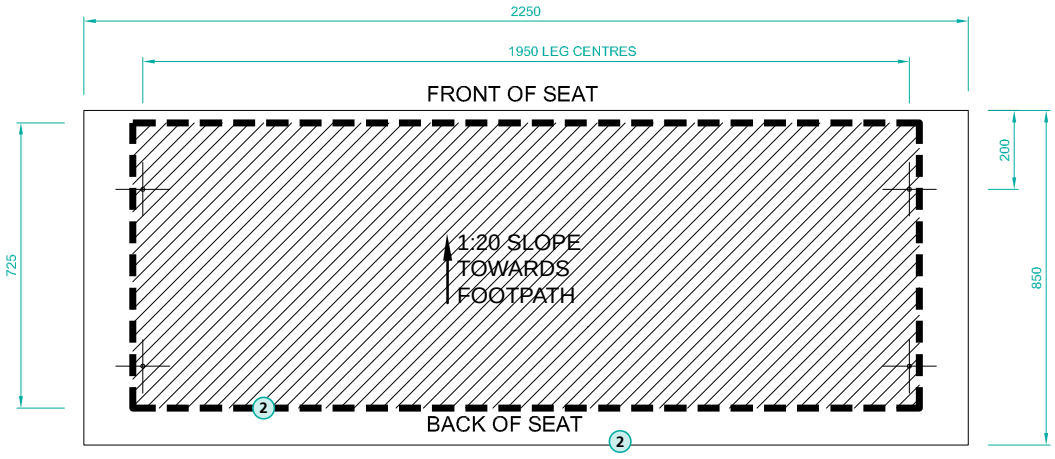
Street Furniture

Park Seat



END ELEVATION (not to scale)

1. Outline of seat (2000mm x 725mm).
2. 2250mm x 850mm x 200mm charcoal coloured concrete pad. (shown in section)
3. Fix seat to concrete footing with **4No-M12** grade **316** stainless steel chemset bolts and **M12** grade **316** stainless steel dome nuts.
4. Charcoal coloured concrete with bluestone aggregate, strip footing with **F82** trench mesh T&B – 50mm minimum cover.



PLAN VIEW (not to scale)

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Technical Notes

3.2.1

Street Furniture

Drinking Fountain

Application

The 'Bent Leaf' drinking fountain with a dog bowl should be used in all situations. Place in consistently similar types of locations, so that people can find them. Appropriate sites for drinking fountains are near (or in clear view of) tram and bus stops, entrances to civic and public buildings (including churches, town halls and schools), sports facilities and picnic areas in parks. Locate near public toilets to avoid long water connections.

When drinking fountains are installed along pedestrian walkways, they should not encroach into the path of travel and should be installed perpendicular to the kerb. There are several monumental or memorial drinking fountains in the municipality. These should be maintained and restored, where necessary. Drinking fountains require a higher level of maintenance than most other street furniture.

Known Supplier

JC Brown Engineering: 102 Barwon Terrace South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description: Bent Leaf drinking fountain

DVR Engineering: 36–40a Maffra Street Coolaroo VIC 3048
telephone: 9309 2300 **email:** info@dvrengineering.com.au
(or approved equivalent)

Materials and Dimensions

Stainless steel **Overall dimensions:** 250mm x 640mm
Height: 930mm or 820mm for users of mobility aids

Installation

Locate drinking fountain a minimum of 700mm from the kerb line. The drinking fountain is to be sub-surface mounted and bolted to a concrete footing using galvanised steel rag bolts. Drainage pipes to connect to passive or water sensitive stormwater systems, where possible. The operating pressure is not to exceed 19.5N.

Refer to

- Drinking Fountain page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information
- Yarra Standard Details

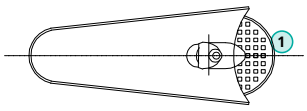
CITY OF YaRRA

Technical Notes

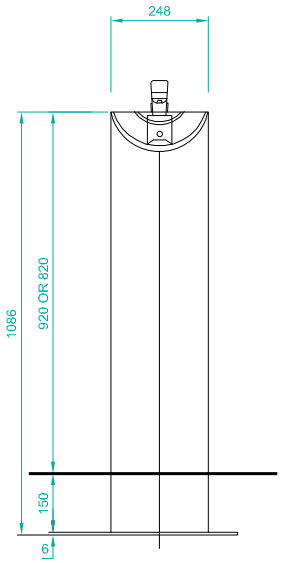
3.2.1

Street Furniture

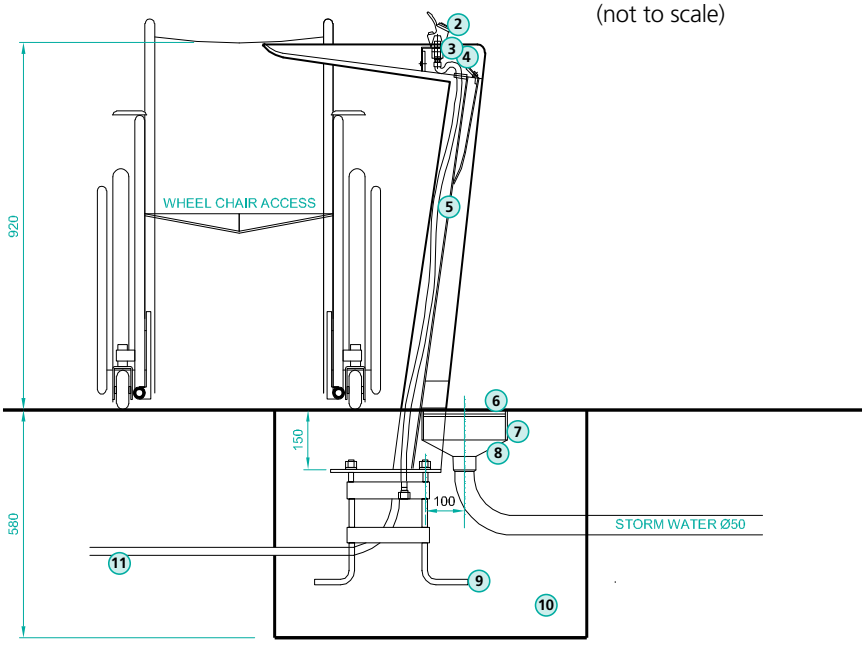
Drinking Fountain



PLAN VIEW (not to scale)



SIDE ELEVATION
(not to scale)



SECTION (not to scale)

1. Enware Type 61 drinking fountain tap/bubbler brassy.
2. Enware Type 61 drinking fountain tap/bubbler brassy.
3. Brass adapter.
4. Flexible stainless steel water supply hose. Note: Hose shall be long enough to extend min 100mm.
5. Stainless steel drink fountain.
6. Stainless steel grate.
7. Stainless steel drain.
8. Concrete drain.
9. Galvanised rag bolts.
10. Concrete pad footing.
11. Gate valve placed adjacent to drink fountain for shutting off water supply with 580mm^2 cast iron pit cover.

NOTE: Installation of all plumbing items shall be performed by a licenced plumber. All fountains must be supplied with a plumber's certificate upon completion or order.

CITY OF YaRRA

Technical Notes

3.3.1

Street Furniture

Bicycle Hoop (stainless steel)

Application

Bicycle hoops are to be located along cycle routes and at cycle destination points, such as retail centres and public venues. All new car parks should have provision for bicycle parking located close to the entry/exit. The demand for bicycle parking can be determined by the number of bicycles locked to poles and fences in the area. Other street elements, such as sign posts, also provide bicycle parking, especially where bicycle hoops are inappropriate, such as along narrow footpaths.

The bicycle hoops may be used singly, in pairs or in groups and can be set parallel, angled or perpendicular to to the kerb. The positioning of the hoops depends on the available space and layout of other street furniture elements nearby. Hoops located in a horizontal or vertical row should be placed equidistantly.

Locate new hoops so that more can be placed next to them if the demand grows in the future. When replacing older style bicycle hoops, replace them all at once. Hoops should be installed such that the bicycle does not encroach into a walkway. Hoops are to be set back 900mm from the kerb line when located perpendicular to the kerb and 600mm when parallel to the kerb.

Know Supplier

JC Brown Engineering
102 Barwon Terrace South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au
(or approved equivalent)

Materials and Dimensions

Grade 316 stainless steel (no powder coat)
Length: 852mm **Height:** 810mm

Installation

Bicycle hoops can be surface or sub-surface mounted. The base plate is to be anchored using a suitable chemset anchor. Gib key sockets, as typical for other street furniture, are not recommended, due to risk of theft.

Refer to

- Bicycle Hoop (stainless steel) page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details
- Bicycle Victoria

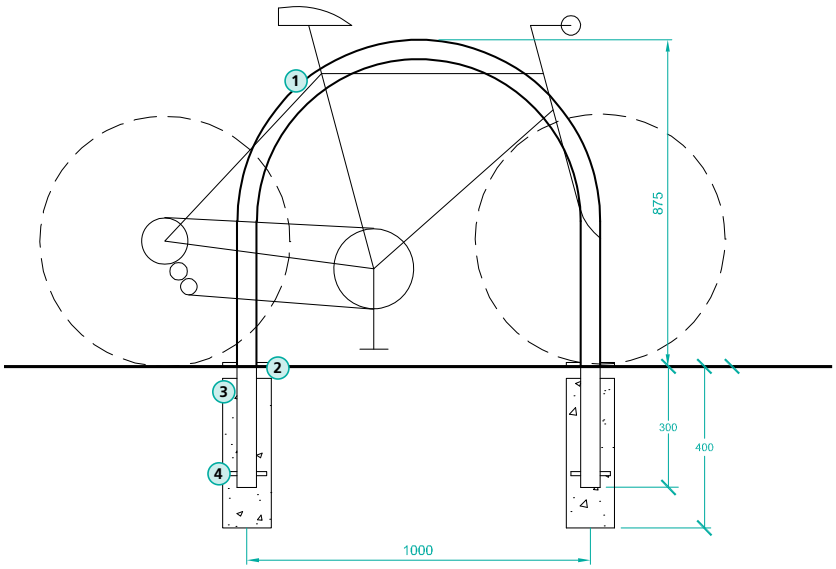
CITY OF YaRRA

Technical Notes

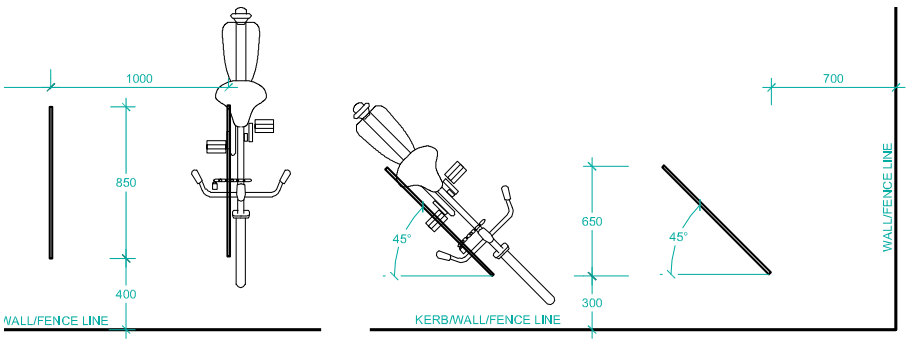
3.3.1

Street Furniture

Bicycle Hoop (stainless steel)



SIDE ELEVATION (not to scale)



PLAN VIEW (not to scale)

1. Stainless steel circlular hollow section bike hoop.
2. Stainless steel mount plate 5mm thick with three mounting holes. Mount plate is fully welded on the underside so that weld is not visible.
3. 120mm diameter cored hole infilled with concrete. Bike stand must be set vertical and level.(shown in section)
4. Stainless steel rods welded to bike hoop.

NOTE: Bike hoops can be surface or sub–surface mounted.

CITY OF YaRRA

Technical Notes

3.4.1

Street Furniture

Yarra Bollard (stainless steel)

Application

The Yarra bollard may be used as a protective barrier to separate pedestrian and vehicle zones, where a kerb is not required. It is to be used in all situations requiring bollards, except in some parks and gardens.

The matching removable version is fabricated from hollow stainless steel tubes. In laneways, where visibility is problematic, bollards should be powder coated Golden Yellow (AS 2700 Y14). A 75mm band of red or contrasting reflector tape, 150mm from the top, should be applied or a contrasting band on the top.

In areas requiring heavy duty bollards, such as tight laneways and corners, use a larger diameter concrete filled stainless steel bollard. Where bollards are installed within a walkway, warning tactile ground surface indicators should be installed in front of the bollard(s).

Known Supplier

JC Brown Engineering
102 Barwon Terrace South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au
(or approved equivalent)

Materials and Dimensions

Solid stainless steel or hollow stainless steel tube or powder coated mild steel depending on the application (see above). **Size:** 63.6–115mm dia. **Height:** 900mm or 1200mm height.

Installation

Yarra bollards are to be installed in alignment, equidistant, with at least 1000mm but no greater than 1500mm gap between bollards, to prevent vehicle access.

Refer to

- Yarra Bollard (stainless steel) page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

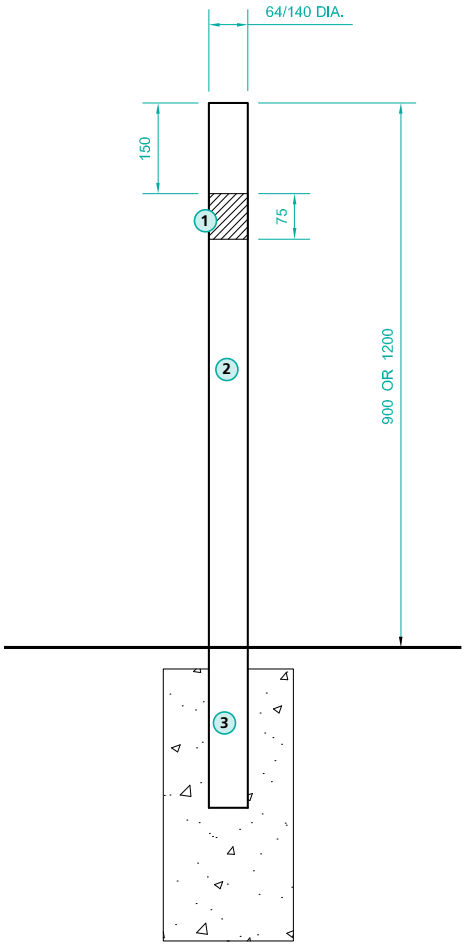
CITY OF YaRRA

Technical Notes

3.4.1

Street Furniture

Yarra Bollard (stainless steel)



SIDE ELEVATION (not to scale)

1. Reflective tape.
2. Stainless steel bollard. Use the larger diameter bollard filled with concrete in heavy duty areas.
3. Cored hole filled with concrete. Bollard must be set vertical and level. (shown in section)

NOTE: Concrete footing can be set down from ground level to allow for paving over.

CITY OF YARRA

Technical Notes

3.4.2

Street Furniture

Timber Bollard Fence and Barrier (Cypress Pine including fence and barrier version)

Application

Timber bollards may be used to separate pedestrian and vehicle zones, where a kerb is not required in parkland sites and around larger garden beds.

The use of fences and other pedestrian barriers should be avoided adjacent to fast moving vehicles as they can trap pedestrians, if not carefully located in relation to pedestrian movement pathways.

The fence material between timber bollards may be pipe, chain or mesh fence, all of which are to be unpainted. The wire mesh should be only used around playgrounds. Pipe should not be used adjacent to moving vehicle lanes. Reflective material should be incorporated where used in vehicular access areas.

Supplier

Local supplier

Materials and Dimensions

Timber bollards are unpainted Cypress Pine
Size: 1000mm x 150mm x150mm with a pyramid shaped top.

Installation

Timber bollards are to be installed in alignment, equidistant, with at least 1000mm but no greater than 1500mm gap between bollards, to prevent vehicle access.

Refer To

- Timber Bollard (Cypress Pine) page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

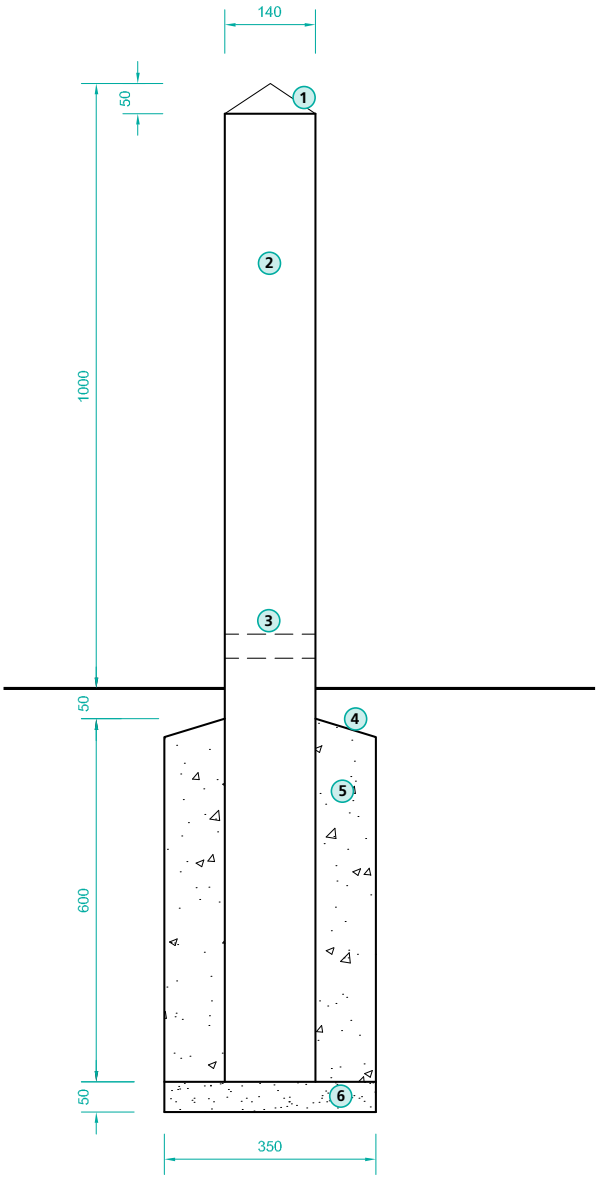
CITY OF YaRRA

Technical Notes

3.4.2

Street Furniture

Timber Bollard Fence and Barrier (Cypress Pine including fence and barrier version)



SIDE ELEVATION (scale 1:10)

1. Accurately cut top of bollard to angle as shown to all 4 sides.
2. 140mm x 140mm x 1600mm dressed cypress pine bollard free from splits, warps and splinters. Top of bollard shall be 1000mm above finished surface level.
3. Post alongside roadway shall be frangible and have 35mm diameter hole, 50mm above finished surface level drilled through centre of post. Hole shall run perpendicular to direction of traffic.
4. Form 1:10 slope to top of footing with the top of footing 50mm below finished surface level when in grass or garden bed areas.
5. 350 x 350 x 600mm deep 25MPA concrete footing extending minimum 100mm all around bollard. (shown in section)
   Note: For areas where a strong footing may not be required use cement stabilised and compacted earth backfill.
6. 50mm depth fine crushed rock to base of footing and fully compacted.

CITY OF YARRA

Technical Notes

3.4.3

Street Furniture

Melbourne Heritage Bollard

Application

The Melbourne Heritage bollard is typical of North Carlton and Princes Hill and should continue to be used there. Do not install bollards as decorative features when there is no functional requirement for them. They should be used as a protective barrier to separate pedestrian and vehicle zones, where a kerb is not required.

Bollards may be subject to damage from vehicles, in which case, they should be replaced as soon as possible. This bollard should only be used where there is evidence of use in the 19th Century based on M.M.B.W. plans. Do not use outside the former City of Melbourne area. Where bollards are installed within a walkway, warning tactile ground surface indicators should be installed in front of the bollard(s).

Known Supplier

Furphy's Foundry Sales Pty Ltd
Drummond Road Shepparton, VIC 3630
telephone: 5831 2777 **fax:** 5831 2681
email: furphycg@mcmedia.com.au

Materials and Dimensions

The bollard is solid galvanised steel painted. The removable version is made from cast aluminium to reduce its weight. Paint Deep Brunswick Green with crest insignia painted gold. **Size:** 226mm diameter at the base
Height: 1000mm in height

Installation

Melbourne Heritage bollards are to be installed in alignment, equidistant, with at least 1000mm but no greater than 1500mm gap between bollards, to prevent vehicle access. The former Melbourne City Council crest painted gold should be turned to face the on-coming traffic or the entrance.

Refer To

- Melbourne Heritage Bollard page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

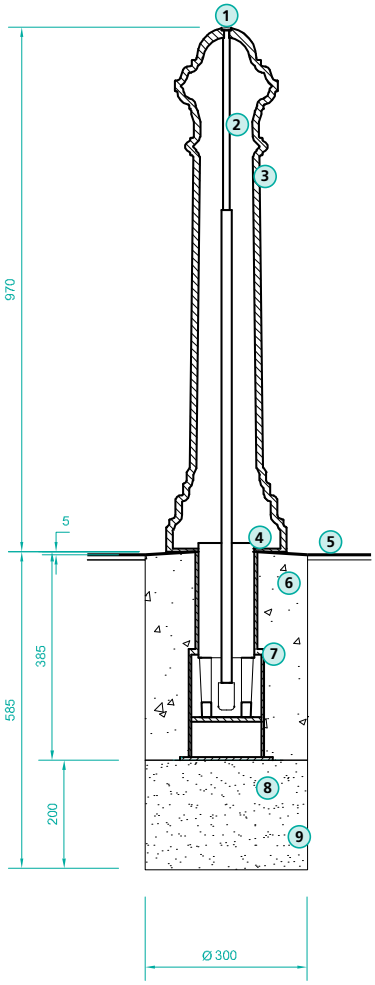
CITY OF YaRRA

Technical Notes

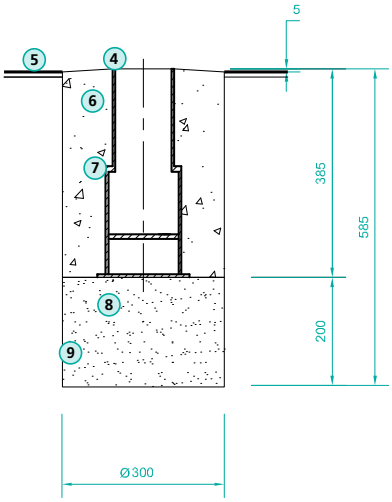
3.4.3

Street Furniture

Melbourne Heritage Bollard



SECTION —
BOLLARD FOOTING
(not to scale)



SECTION —
SPARE SOCKET FOOTING
(not to scale)

1. Turn-screw to release flippers at base of bollard.
2. Stainless steel tube.
3. Cast aluminium bollard. Undercoat with green base coat and finish with one coat high speed enamel (Deep Brunswick Green) acrylic automotive spray lacquer.
4. Set top of socket 5mm above level of surrounding pavement. Finish concrete flush with pavement at edges and grade up smoothly to top of socket.
5. Pavement surface level.
6. Concrete footing (25MPA).
7. Galvanised stepped steel socket cast into concrete footing.
8. 20mm aggregate granular fill to allow for drainage.
9. Roughen edges of hole to aid drainage of water into surrounding soil.

NOTES: Hole for footing to be cored into finished pavement surface and carefully concrete on position of bollard. Do not saw-cut or excavate using other methods. Concrete to be made with bluestone aggregate and tinted grey using one 25kg bag of charcoal colouring per cubic metre of concrete.

CITY OF YARRA

Technical Notes

3.4.4

Street Furniture

Fitzroy Heritage Bollard

Application

The Fitzroy Heritage bollard should be used where a more traditional appearance is important, in particular in historical gardens. Do not install bollards as decorative features when there is no functional requirement for them. They should be used to separate pedestrian and vehicle zones, where a kerb is not required.

Bollards may be subject to damage from vehicles, in which case they should be replaced as soon as possible. Use only where there is evidence of use in the 19th Century based on M.M.B.W. plans. Do not use outside the former City of Fitzroy area.

Where bollards are installed within a walkway, warning tactile ground surface indicators should be installed in front of the bollard(s).

Known Supplier

Furphy's Foundry Sales Pty Ltd
Drummond Road Shepparton, VIC 3630
telephone: 5831 2777 **fax:** 5831 2681
email: furphycg@mcmedia.com.au

Materials and Dimensions

The bollard is solid galvansied steel painted.
The removable version is made form cast aluminium to reduce its weight. Painted Deep Brunswick Green or charcoal grey.
Size:150mm (octagonal) diameter at the base. **Height:** 1200mm

This bollard is used more when traditional appearance is important.

Installation

Fitzroy Heritage bollards are to be installed in alignment, equidistant, with at least 1000mm but no greater than 1500mm gap between bollards, to prevent vehicle access.

Refer to

- Melbourne Heritage Bollard detail 4.4.3 page 2 of 2
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

CITY OF YaRRA

Technical Notes

3.4.4

Street Furniture

Refer to **Melbourne Heritage Bollard Detail** (3.4.3)

Technical Notes

3.5.1

Street Furniture

Rubbish Bin

Application

Bins should be located near a road or path that is traversable by rubbish trucks. Positions near street corners are preferred, where No Standing zones ensure access. Bins, when replaced, should remain in the same location. Any relocation should involve consultation with neighbouring businesses and with the City of Yarra Asset Manangement Division. Bins should not be located in front of doorways, in pedestrian paths, where they are visually obtrusive or obscure car/pedestrian/bike viewlines. Bins require a higher level of maintenance than most other street furniture.

The powder coated green rubbish bins are to be used in parks only. An adaptation with a dog-poo dispenser in the door is recommended for appropriate locations.

Known Supplier

Furphy Foundry
PO BOX 1929 Shepparton
telephone: 5831 2777

JC Brown Engineering
102 Barwon Terrace South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au
(or approved equivalent)

Materials and Dimensions

Stainless steel (to maunfacturer's instructions) or powder coated (see above). **Plan:** 600mm x 650mm **Height:** 970mm

Installation

Refer to manufacturer's instructions.

Refer To

- Rubbish bin page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

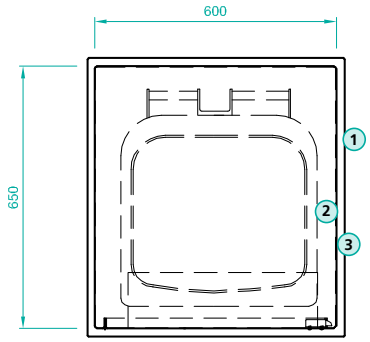
CITY OF YaRRA

Technical Notes

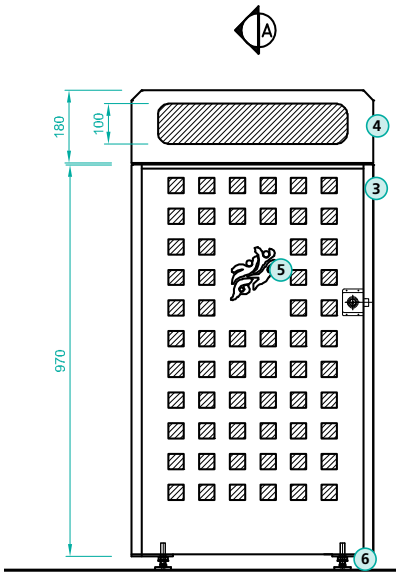
3.5.1

Street Furniture

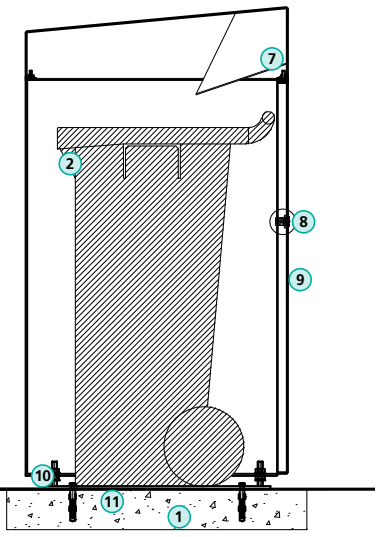
Rubbish Bin



PLAN VIEW120L BIN (not to scale)



SIDE ELEVATION 120L BIN
(not to scale)



SECTION 120L BIN
(not to scale)

1. Charcoal concrete pad footing.
2. 120 litre wheely bin.
3. Stainless steel perforated surround.
4. Stainless steel mirror polished lid.
5. City of Yarra laser cut logo.
6. 700mm x 700mm x 100mm concrete pad.
7. Stainless steel chute.
8. Locking mechanism.
9. Door opening
10. Adjustable thread.
11. Galvanished base fixing bracket.

CITY OF YaRRA

Technical Notes

3.6.1

Street Furniture

Cigarette Bin

Application

Cigarette bins should be stainless steel only for easy maintenance. The installation of wall and pole mounted cigarette bins will be phased out with the introduction of bin mounted cigarette bins.

These will be mounted to existing bins throughout activity centres in the municpality.

Supplier

Contact the City of Yarra
Assets Division for more information
telephone: 9205 5555

Materials and Dimensions

Stainless steel

Maintenance

To be maintained by the supplier through a special service contract. With bin mounted cigarette bins there is more efficient maintenance as they can also be emptied when the bins are cleaned out.

Refer to

- City of Yarra Assets Division

CITY OF YaRRA

Technical Notes

3.6.1

Street Furniture

Technical Notes

3.7.1

Street Furniture

Picnic Table and Chairs

Application

Picnic tables and chairs should be located where they will recieve shade from midday through to the early afternoon in summer, but some sun in winter. They should not be placed in constant sun or shade.

The visual impact and practical location for picnic facilities, including a barbecue, should consider the ways the entire space is used, and proximity to transport and carparks. Any overall masterplan for the park should be consulted. If there is more than one picnic table and chairs setting in the park, replace all at the one time.

Where access is provided for users of mobility aids, a suitable access path should be provided and the design modified to provide access from the end of the table or the length of one of the seats reduced to provide an allocated space of 800mm minimum.

Known Supplier

JC Brown Engineering
102 Barwon Terrace South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description

Melbourne Picnic Set (or approved equivalent)

Materials and Dimensions

The seat has timber battens. The table has an 'easy to clean' stainless steel table top. **Table height:** 755mm **Seat height:** 420mm

Installation

Install on a concrete pad (charcoal coloured) 3200mm x 2600mm

Refer To

- Picnic tables and chairs page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

Picnic tables and chairs should not be placed in constant sun or shade.

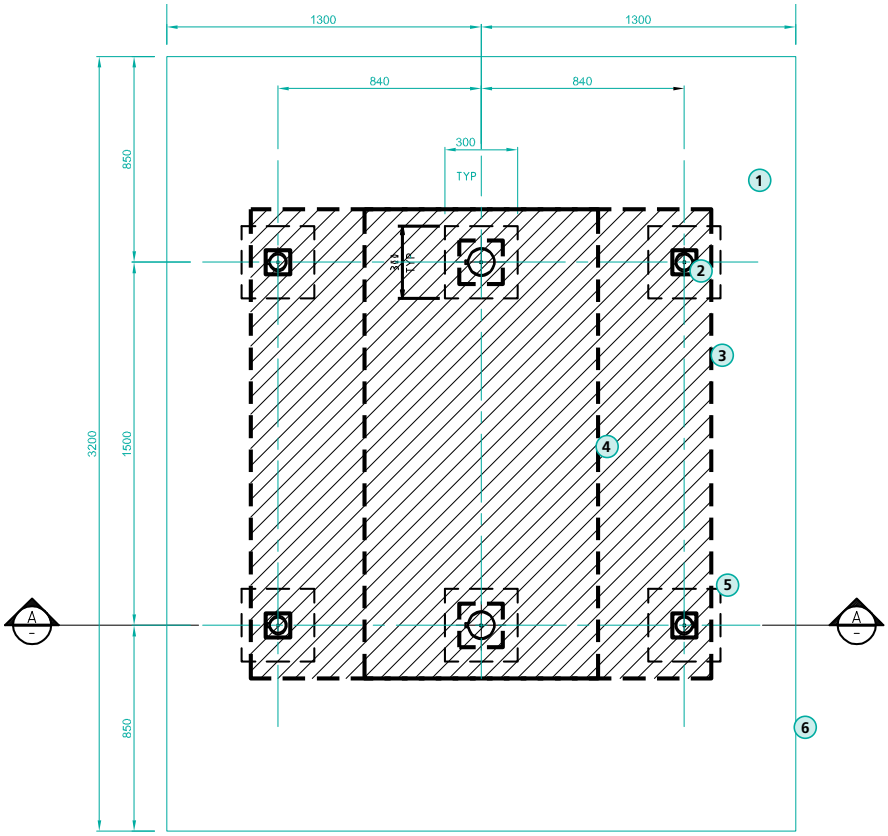
CITY OF YaRRA

Technical Notes

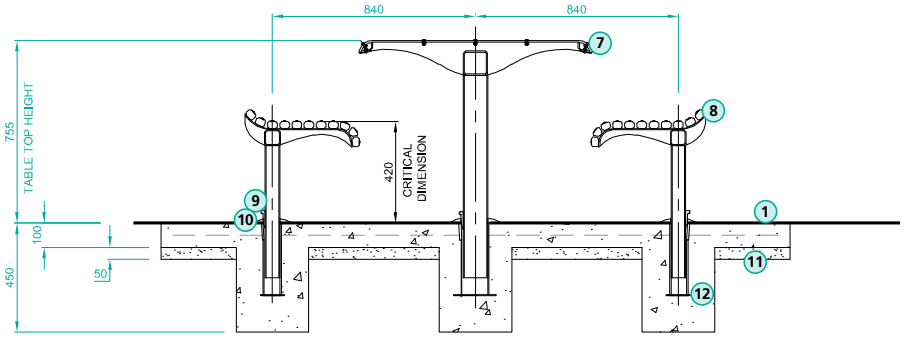
3.7.1

Street Furniture

Picnic Table and Chairs



PLAN VIEW – PICNIC SET (not to scale)



SECTION AA (not to scale)

1. 100mm thick charcoal coloured concrete slab.
2. Location of galvanised ground sockets 4 No-Total for seats 2No-Total for table.
3. Outline of seat.
4. Outline of table.
5. 300mm x 300mm x 450mm deep concrete footing (TYP 8-No locations).
6. Edges of concrete slab shall be flush with ground level.
7. Steel framed picnic table with stainless steel top.
8. Steel framed picnic seat with timber battens.
9. Fix seat and table in place with galvanised gib key.
10. Cast aluminium base caps.
11. 50mm compacted sand bed.
12. Galvanised steel ground socket cast into concrete pad footing.

CITY OF YARRA

Technical Notes

3.8.1

Street Furniture

Barbecue

Application

Barbecues should be located where they are visible at day and night as they are vulnerable to vandalism.

The visual impact and practical location for picnic facilities, including a barbecue, should consider the ways the entire space is used, and proximity to transport and carparks. Any overall masterplan for the park should be consulted. Picnic table and chairs should be located close to a barbecue, while maintaining enough distance to allow easy access to the barbecue.

Known Supplier

JC Brown Engineering
102 Barwon Terrace South Geelong VIC 3220
telephone: 5221 3177 **email:** sales@jcbrown.com.au

Description

Melbourne Barbecue (or approved equivalent)

Materials and Dimensions

The barbecue has an 'easy to clean' stainless steel table top.
Powder coat base green to match park rubbish bin and park seats' colour.
Height: 905mm **Top dimensions:** 3020mm x 3615mm

Installation

It should be typically installed on a concrete pad (charcoal coloured) 3020mm x 3615mm.

Refer to

- Barbecue page 2 of 2 – detail information
- Contact **Dial Before You Dig** on **1100** for all underground services information.
- Yarra Standard Details

Picnic tables and chairs should be located close to a barbecue.

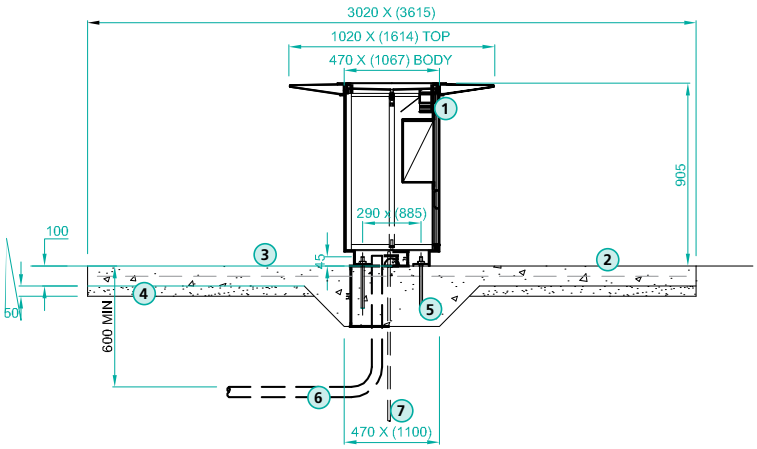
CITY OF YaRRA

Technical Notes

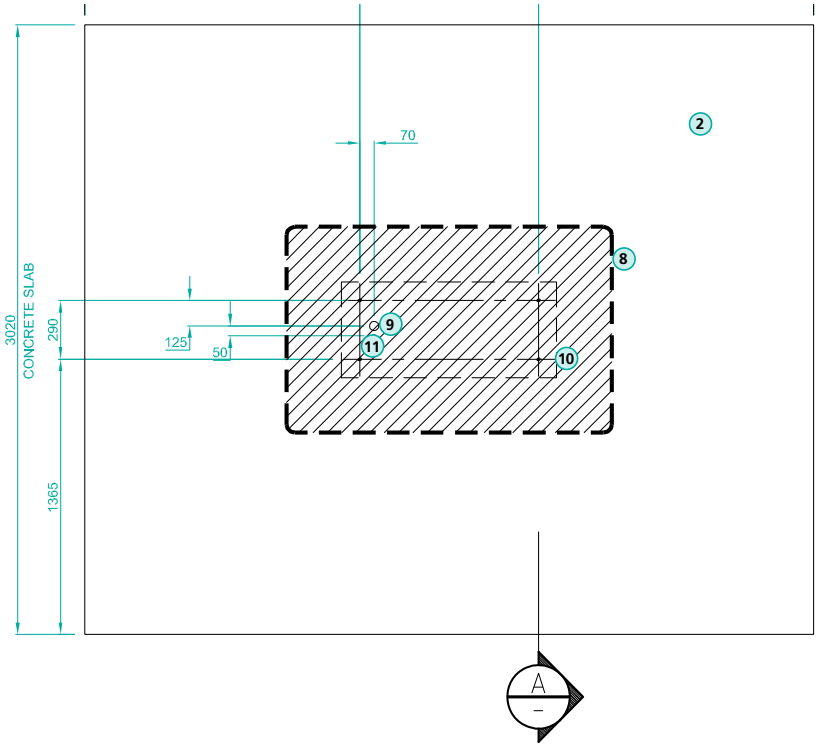
3.8.1

Street Furniture

Barbecue



SECTION (not to scale)



PLAN – DOUBLE ELECTRIC BBQ (not to scale)

1. Steel sheeted electric barbecue with stainless steel top.
2. 100mm thick charcoal coloured concrete slab.
3. Top of slab shall be flush with top of ground.
4. 50mm thick compacted sand base.
5. Fix BBQ to slab with 4 No-M16 stainless steel chemset holding down bolts.
6. 50mm diameter uPVC electrical conduit connected to existing electrical.
7. 12mm diameter x 1200mm long copper earth stake (for grounding of electrical).
8. Outline of stainless steel BBQ top.
9. Electrical conduit.
10. Outline of BBQ body and slab thickening.
11. Earth stake.

CITY OF YARRA

Technical Notes

3.9.1

Street Furniture

Skateboard Deterrents

Application

Skateboard deterrents can be retrofitted to existing stonework, if necessary, with buttons or fins. They can also be used in new work.

It is preferrable for skateboard deterrent measures to be integrated into the detail design, which can be done by:

- The use of steel detailing integrated with the jointing pattern in stonework.
- The use of textured or heavily jointed masonry as a deterrent, rather than smooth sawn stonework.
- The use of broadly rounded or angled edges which can deter skate boarders as there is no straight sharp edge.
- Adding a steel strip along the top edge of a seat to protect it.
- The use of heavily textured pavements at the base of seats or steps, such as stone setts.
- Locating street furniture or other features to impede clear runs to the edges and slopes that may be used for skateboarding jumps.

Suppliers

NA

Materials and Dimensions

Fins: 5mm stainless steel plate projected 15–20mm beyond stonework at 750–1000mm intervals. **Buttons:** 36mm x 20mm stainless steel set 20mm from edge at 750–1000mm intervals.

Installation

Refer to manufacturer's instructions

Refer to

- Skateboard Deterents 4.9.1 page 2 of 2
- Australian Standards

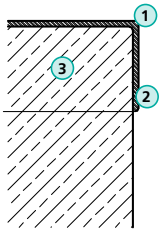
CITY OF YaRRA

Technical Notes

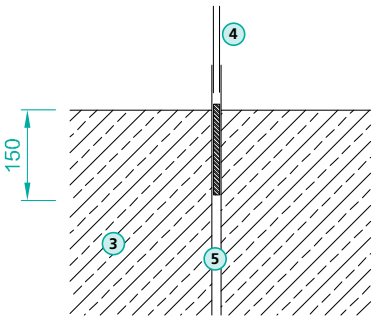
3.9.1

Street Furniture

Skateboard Deterrents



SECTION (1:10)



ELEVATION (1:10)

1. 5mm radius to corners of anti-skate fins.
2. Stainless steel fins fixed in stonework joints using approved epoxy fixative with 10mm projection top and sides.
3. Seat, step or low wall / edge with 5mm chamfer to all exposed edges of stonework.
4. Anti-skate fin centred in joint with 10mm projection.
5. 15mm overall joint in stonework.

CITY OF YaRRA

Technical Notes

4.1.1

Paving,Kerbs & Gutters

Asphalt Paving

Application

Asphalt is the preferred material for most footpaths and carriageways in the City of Yarra. It can also be used to infill surface areas of small (less than 5 square metres) medians and traffic islands. The appropriate construction standard for asphalt varies depending on whether the site is subject to pedestrian, light vehicle or heavy vehicular traffic or in areas where footpaths are used for outdoor cafe furniture.

Known Supplier

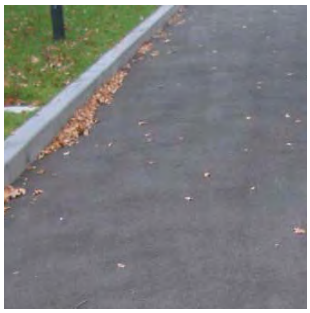
Not applicable

Materials

Asphalt

Installation

Finish asphalt flush with surrounding surface level. Where sections of asphalt are to be excavated for underground service repairs etc, existing paving should be cut in a neat square or rectangle for removal.



Refer to

- Asphalt Paving page 2 of 2– detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Details

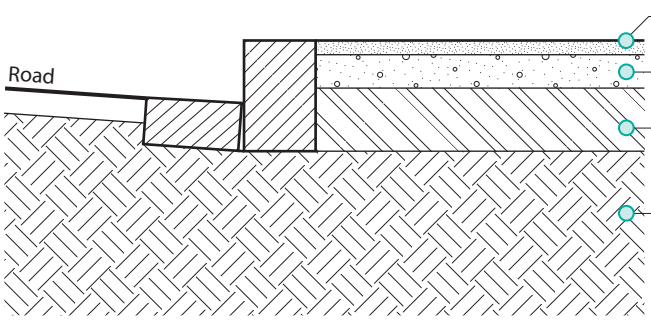
CITY OF YaRRA

Technical Notes

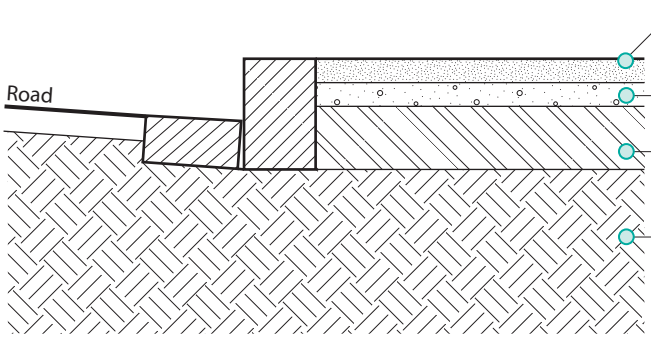
4.1.1

Paving,Kerbs & Gutters

Asphalt Paving



SHOPPING STRIP ASPHALT FOOTPATH (not to scale)



SHOPPING STRIP FOOTPATH – CAFE AREA (not to scale)

CITY OF YaRRA

Technical Notes

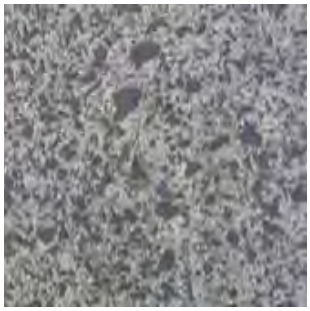
4.1.2

Paving,Kerbs & Gutters

In-situ Concrete Paving

Application

In-situ concrete paving is suitable for footpaths and carriageways in some areas, although asphalt is the preferred material. In situ concrete should be used when the local surface material is in-situ concrete, for a consistent appearance. It may also be used for the surfaces of small medians and traffic islands built with concrete kerbs.



Known Supplier

Not applicable

Materials

All concrete should be made with a bluestone aggregate and tinted light grey, using one 25kg bag of charcoal colouring per cubic metre of concrete.

All outdoor surfaces must meet Australian Standards for slip resistance in outdoor spaces.

Installation

Finish in-situ concrete flush with surrounding surface level.

Refer to

- In-situ Concrete Paving page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information.
- Yarra Standard Details

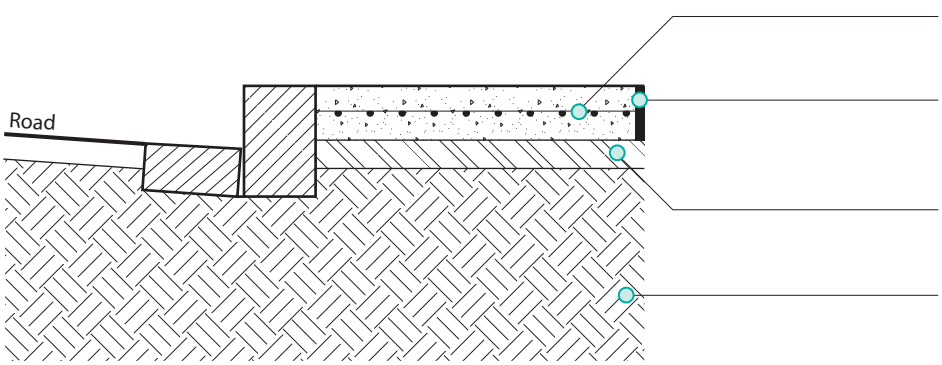
CITY OF YaRRA

Technical Notes

4.1.2

Paving,Kerbs & Gutters

In-situ Concrete Paving



CONCRETE PATH DETAIL (not to scale)

CITY OF YaRRA

Technical Notes

4.1.3

Paving,Kerbs & Gutters

Bluestone Paving

Application

Sawn bluestone flagstones should only be used in areas of particular civic significance. The size of paver to be used will depend on the proportion of the paver in relation to the space, the design intention and the level of use. The largest size paver available (495x995mm) is suitable for pedestrian use only, while smaller sizes (ie. 245x495mm) are suitable for light vehicle loads. Sawn bluestone setts are preferred in areas where vehicles will access. The smaller size pavers tend to be more economical and are easier to install.

Known Supplier

Not applicable

Materials

Sawn bluestone
All outdoor surfaces must meet Australian Standards for slip resistance in outdoor spaces.

Installation

Typically 5mm grouted joints.

Refer to

- Bluestone Paving page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information.
- Yarra Standard Details

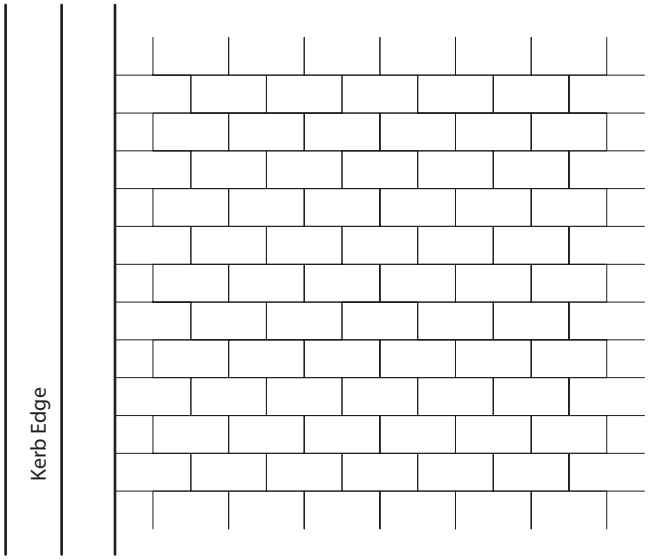
CITY OF YaRRA

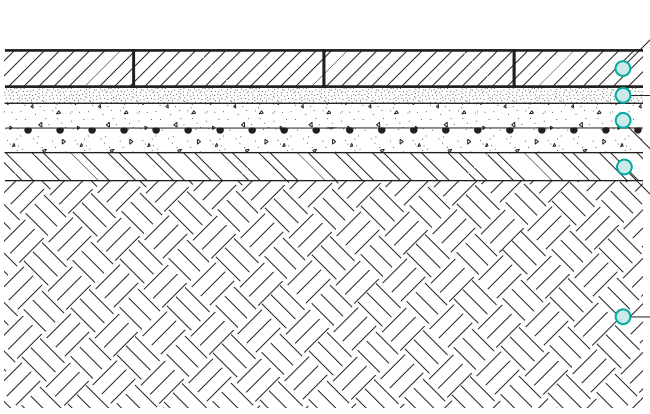
Technical Notes

4.1.3

Paving,Kerbs & Gutters

Bluestone Paving





Bluestone pavers as specified. Pavers shall be butt joined

30mm depth cement mortar bed

100mm depth concrete base with F72 mesh located centrally

50mm compacted depth class 3 recycled crushed concrete base

Sub-base fully consolidated with all soft spots removed

BLUESTONE PAVING DETAIL: PEDESTRIAN LOADING (not to scale)

CITY OF YaRRA

Technical Notes

4.2.1

Paving,Kerbs & Gutters

Tactile Indicators

Application

General principles for tactile ground surface indicators (TGSIs) are:

- Minimise the need for TGSIs using simple/direct lines of travel to intersections and crossings.
- Remove hazards along travel routes where possible, rather than marking them with TGSIs.
- Design footpaths and other spaces so that they are easy and safe to navigate with the minimum use of TSGIs.
- Ensure consistency in the use of TGSIs within a given area.
- Avoid using TGSI at isolated intersections or crossings or for decorative reasons.
- Use the minimum appropriate quantity of TGSIs.

Known Supplier

Australian Building Ceramics
398 Hammond Road, Dandenong 3175
telephone: 03 9794 9199
www.granito.com.au
(CERAMIC TACTILE PAVERS)

DTAC Pty Ltd
479-481 South Road
Moorabbin 3189
telephone: 9553 1799
www.dtac.com.au
(STAINLESS STEEL TACTILE BUTTONS)

Tac-Pave Australia
telephone: 03 6286 1195
email: info@tac-pave.com.au
(POLYMER-CONCRETE TACTILE PAVERS)

Materials

Ceramic tactile pavers 300x300mm tiles – steel grey 'Granito' for concrete areas. Polymer-concrete tactiles – steel grey for asphalt areas. Stainless steel TGSIs max ribbed style for paved or high profile areas. Colour must contrast with the surrounding surface treatment – refer to AS1428.

Installation

Refer to manufacturer's instructions and the relevant Australian Standards (AS1428).

Refer to

- Yarra Standard Details
- Australian Standards
- Vic Roads RDN 9-15 Guidelines for Placement of Tactile Indicators

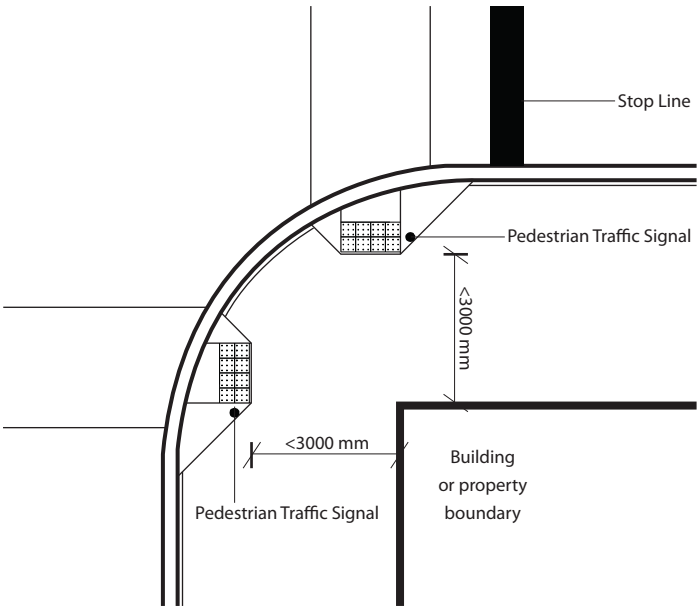
CITY OF YaRRA

Technical Notes

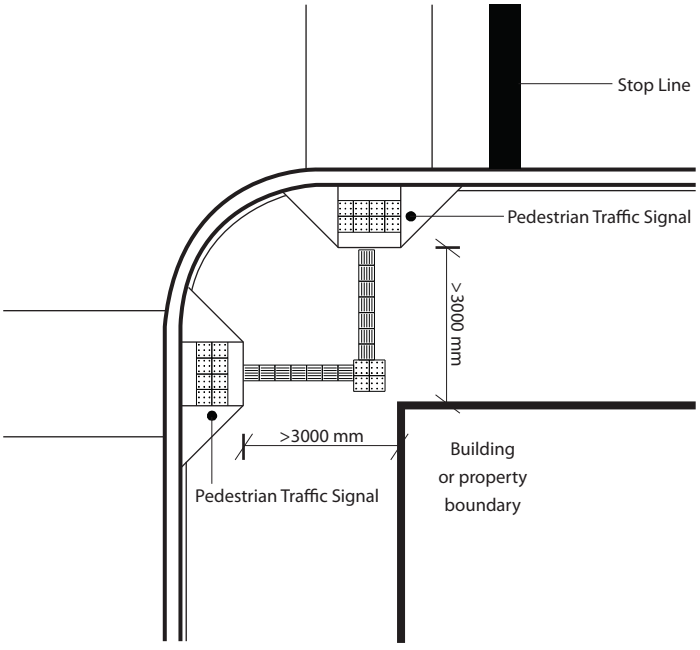
4.2.1

Paving,Kerbs & Gutters

Tactile Indicators



TACTILE PLACEMENT AT RIGHT ANGLE INTERSECTION WITH <3000mm FOOTWAY (not to scale)



TACTILE PLACEMENT AT RIGHT ANGLE INTERSECTION WITH >3000mm FOOTWAY (not to scale)

CITY OF YaRRA

Technical Notes

4.3.1

Paving,Kerbs & Gutters

Edging Materials

Application

Use edging for footpaths in parks, between garden beds and lawns and between different pavement materials (in particular loose paving materials).
In general, edging materials should:

- Serve as a drainage channel or have a practical relationship to the construction of the paving (ie. formwork for in situ concrete or asphalt).
- Be in proportion to the path width (ie. narrow path should have a narrow edge).
- Have tight joints and smooth finishes for easy maintenance, especially for lawn areas.
- Avoid using pitcher edging along lawn areas.

Known Supplier

Not applicable

Materials

Timber edging for asphalt and gravel paths and garden beds in grassed areas: 25 x 75 CCA treated pine secured to stakes at 1000mm max. centres. Joints must have 300mm min. overlap to either side, with stabilising splints.

Steel edging for paths and garden beds in formal parks: 100x3mm galvanised steel secured with stakes at 1000mm max. centres.

Bluestone pitcher edging or sawn bluestone: use to match nearby bluestone pitcher kerbs or channels, such as kerb outstands.

Installation

As shown in Yarra Standard Details

Refer to

- Edging Materials page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information.
- Yarra Standard Details

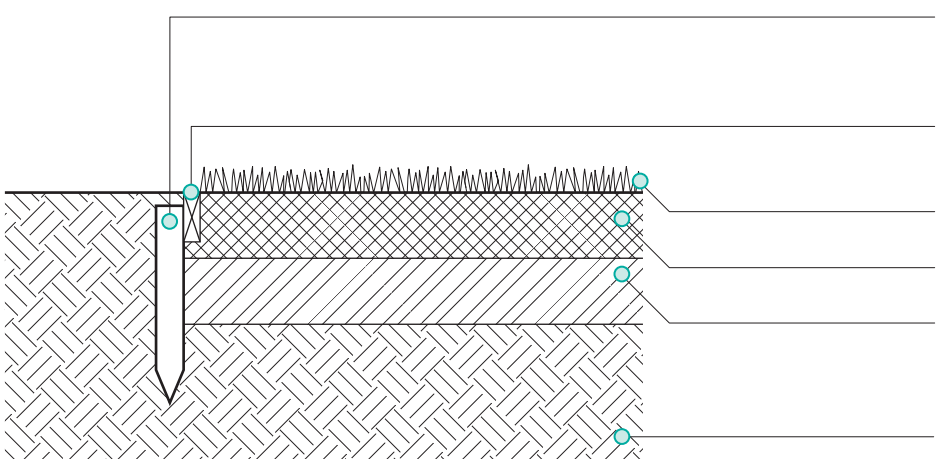
CITY OF YaRRA

Technical Notes

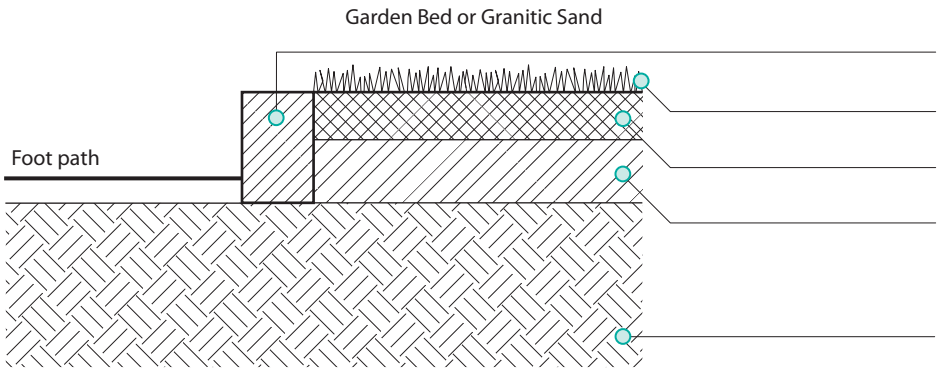
4.3.1

Paving,Kerbs & Gutters

Edging Materials



TIMBER EDGING DETAIL (not to scale)



SAWN BLUESTONE DETAIL (not to scale)

CITY OF YaRRA

Technical Notes

4.4.1

Paving,Kerbs & Gutters

Kerb & Channel – heritage bluestone

Application

The City of Yarra has some of the best examples of bluestone gutters in inner Melbourne and they are an important part of the heritage assets of Yarra. Bluestone kerbs (typically long dressed stones) and channels (typically stone pitchers or squared rubble) are to be retained and reinstated in Heritage Overlay areas and existing kerbs and channels are to be retained in non heritage areas. There is a range of laying patterns and detailing of the bluestone pitcher channels which give local character and detail to streets, some of which are pictured opposite. Care should be taken to retain stone kerbs with special marks, for example early survey marks and remnant fittings such as verandah post fixings, in their original location. Always refer to the relevant MMBW Detail Plans and/or a City of Yarra heritage advisor before any major works are planned or undertaken.

Known Supplier

Reuse matching stockpiled material for repairs and reinstatement only.

Materials

Bluestone kerbs are usually dressed and nominally 1000mm to1500mm long and 300mm deep. The width is usually 200 or 300mm and they should match the width of the existing stones in the street.
Bluestone pitcher channels are nominally 300x225 x150mm roughly hewn blocks.
Where stone kerbs are introduced in Heritage Overlay areas (ie medians or footpath widening) and have no precedent on the MMBW Detail Plans they should be constructed of new sawn bluestone.
Give priority to the use of old kerbstones for repairs or reinstatement of kerbs on their historic alignments. Use new sawn bluestone kerbstones on new alignments (e.g. for widened footpaths).
Where new kerbs are not connected to the main kerbs for traffic islands and medians pre-cast concrete kerb stones or in-situ concrete may be used.

CITY OF YaRRA

Technical Notes

4.4.1

Paving,Kerbs & Gutters

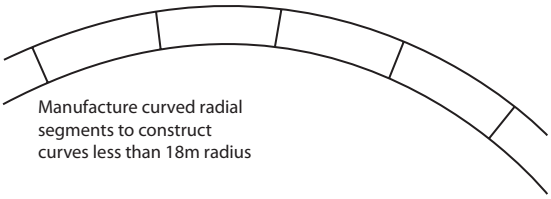
Kerb & Channel – heritage bluestone

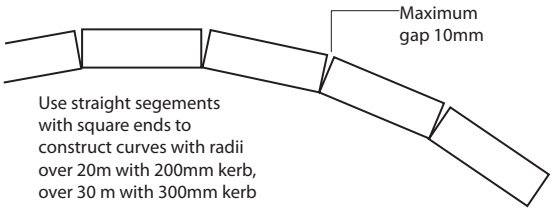
Installation

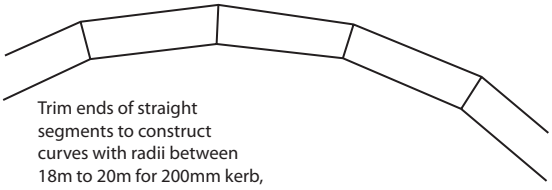
Do not use bluestone pitchers as kerbstone, especially mixed with dressed bluestone, or for segmented curves in kerbs. Only use pitchers for kerbs where it can be verified that this was the original street detailing.
Avoid segmented curves for radii less than 18 metres (see diagram below)
Use standard radii for curved alignments to facilitate supplies and recycling of kerbstones and match original layout as shown on the MMBW Details Plans in Heritage Overlay areas.
Minimise width of joint (maximum 10mm) between pitcher channel stones.
Use charcoal grey coloured mortar.

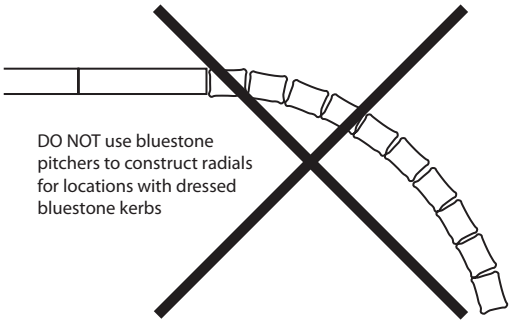
Refer to

- Melbourne & Metropolitan Board of Works (MMBW) Detail Plans as accessible from the network or web (see www.slv.vic.gov.au search in Main Catalog.)
- Kerb & Channel page 3 of 4 and page 4 of 4 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Detail
- City of Yarra, Road Construction Materials Policy adopted 2004.
- VicRoads for main roads









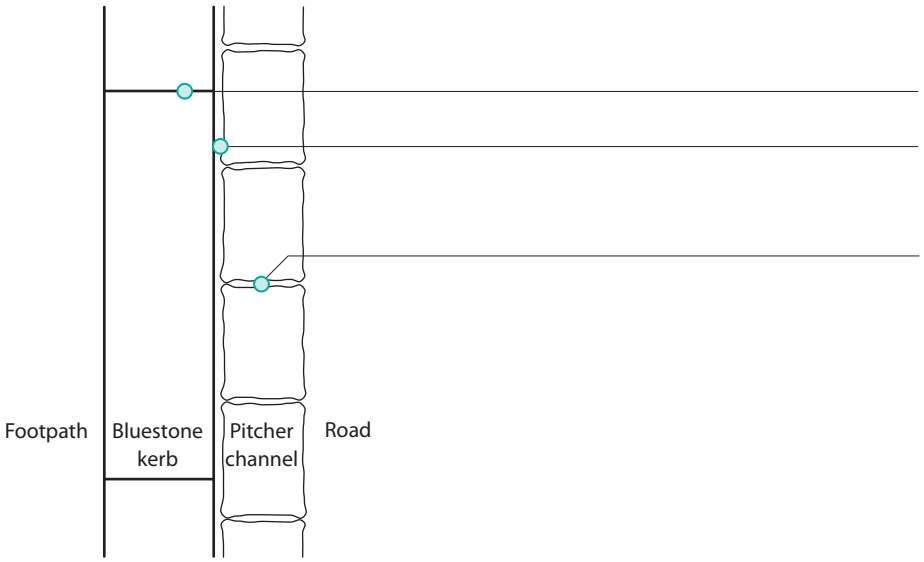
CITY OF YaRRA

Technical Notes

4.4.1

Paving,Kerbs & Gutters

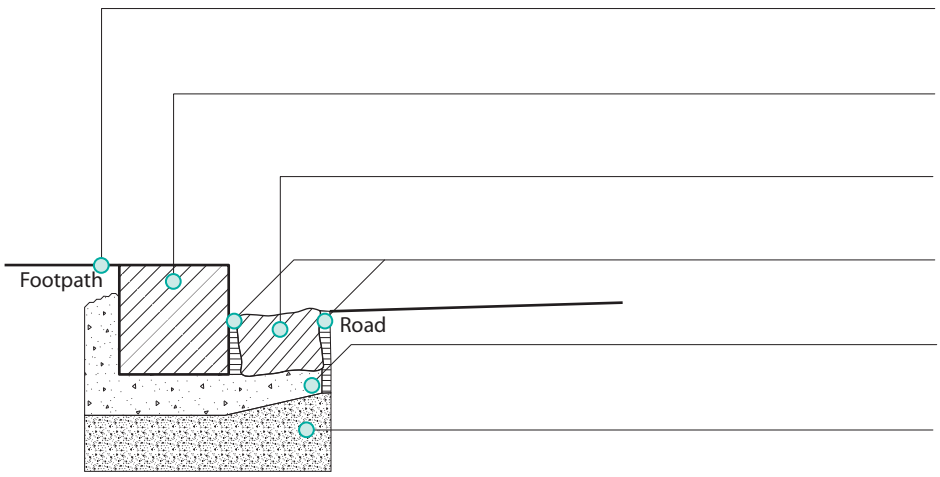
Kerb & Channel – heritage bluestone



Tight mortarless butt joints

10mm max. grey coloured cement mortar joint between kerb and gutter

Minimise grey coloured cement mortar joint between pitchers



Asphalt footpath to match to top of kerb as per existing

Bluestone kerbstone 1500 x 300 x 300mm

Bluestone pitcher 300 x 225 x 150mm

Grey coloured cement slurry as per Y.C.C. standards

50mm min. depth 25MPa concrete bedding and backing

100mm min. depth 4% cement treated crushed rock (class2)

HERITAGE KERB AND CHANNEL – wide sawcut blue stone top (not to scale)

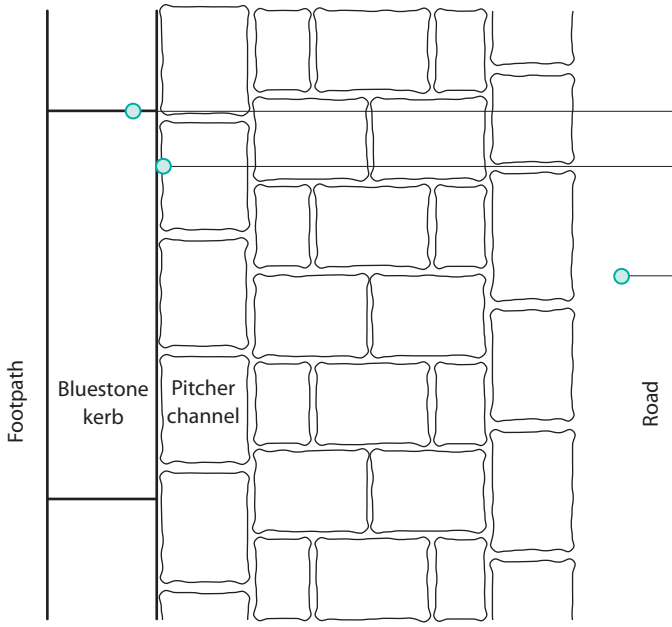
CITY OF YaRRA

Technical Notes

4.4.1

Paving,Kerbs & Gutters

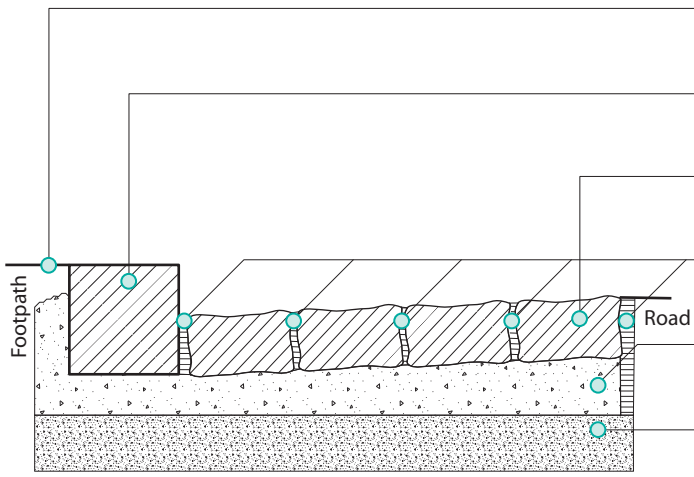
Kerb & Channel – heritage bluestone



Tight mortarless butt joints

10mm max. grey coloured cement mortar joint between kerb and gutter

Minimise grey coloured cement mortar joint between pitchers



Asphalt footpath to match to top of kerb as per existing

Bluestone kerbstone 1500 x 300 x 300mm

Bluestone pitcher 300 x 225 x 150mm

Grey coloured cement slurry as per Y.C.C. standards

50mm min. depth 25MPa concrete bedding and backing

100mm min. depth 4% cement treated crushed rock (class2)

HERITAGE KERB AND CHANNEL – narrow sawcut blue stone top (not to scale)

CITY OF YaRRA

Technical Notes

4.4.2

Paving,Kerbs & Gutters

Pedestrian Kerb Crossing
– access over wide pitcher kerbs

Approach to the retentention of heritage fabric

Wide pitcher channels can vary significantly in the quality of original workmanship as well as their current condition. Although pitcher pavements that have been skilfully laid and are in good condition are rarely a problem, pitchers often create an uneven surface that is unsuitable for access by people with disabilities. Wide pitcher channels at pedestrian crossings are therefore a potential conflict. However, intact wide pitcher channels are part of the historic fabric of the streetscape and their retention is usually desirable. Wide pitcher channels are also often combined with traditional flush crossings which provide a very high standard of access.

The general approach should therefore be to maintain and repair intact bluestone kerb and pitcher channels, avoiding design changes to them but ensuring a high standard of workmanship and maintenance at crossings.

Maintenance and enhancement of access

Where necessary, access over wide pitcher channels can be improved as follows:

- Clean out and carefully refill joints between pitchers with charcoal coloured mortar.
- If re-mortaring is not enough to create an even surface, reset individual dislocated pitchers. Extreme care should be taken to select and fit pitchers together with tight joints and an even surface.
- If resetting individual pitchers will not create an even surface or eliminate lips at the kerb or set the channel at the required level, lift and reset a section of the channel near the crossing to make an even surface flush with the kerb. Ensure that an adequate area is reset to create gradual transitions in grades along the channel.

Each crossing needs to be inspected and treatments specified to suit conditions found.

CITY OF YaRRA

Technical Notes

4.4.2

Paving,Kerbs & Gutters

Pedestrian Kerb Crossing
– access over wide pitcher kerbs

GOOD CROSSING OUTCOMES

POOR CROSSING OUTCOMES

CITY OF YaRRA

Technical Notes

4.4.3

Paving,Kerbs & Gutters

Kerb & Channel
– new sawn bluestone

Application

In Heritage Overlay areas, bluestone kerbs and original detailing are to be retained; however new elements, such as kerb outstands and realigned kerbs, should be constructed of new sawn bluestone to retain the bluestone stockpile for restoration and repair work and to differentiate the new work from original heritage fabric. New bluestone kerbs may also be used when reconstructing concrete kerbs in high profile areas such as activity centres.
In non heritage areas where there are existing bluestone kerbs and gutters the above should also apply.

Known Supplier

Not applicable

Materials

Bluestone kerb lengths average at least 1000mm with 450 mm the minimum. They are sawn and nominally 1000mm to1500mm long and 300mm deep. The width is usually 200mm or 300mm and should match the existing stones in the street in width.
Use pre-cast concrete gutter stones.
Where kerbs are not connected to the main kerbs for traffic islands and medians, pre-cast kerb stones or in-situ concrete may be used.

Installation

Avoid segmented curves for radii less than 18 metres. Use standard radii for curved alignments to facilitate supplies and recycling of kerbstones and match original layout as shown on the MMBW plans in Heritage Overlay areas. Where kerbs are not connected to the main kerbs for traffic islands and medians, pre cast kerb stones or in-situ concrete may be used.
Joints should be kept to a minimal width.

Refer to

- Kerb & Channel page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Detail
- City of Yarra, Road Construction Materials Policy adopted 2004
- VicRoads for main roads

CITY OF YaRRA

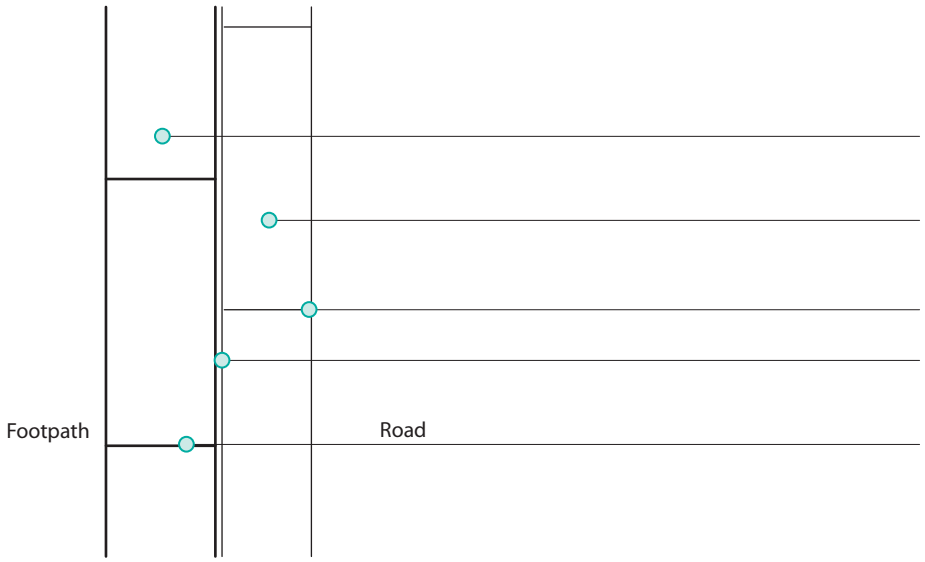
Technical Notes

4.4.3

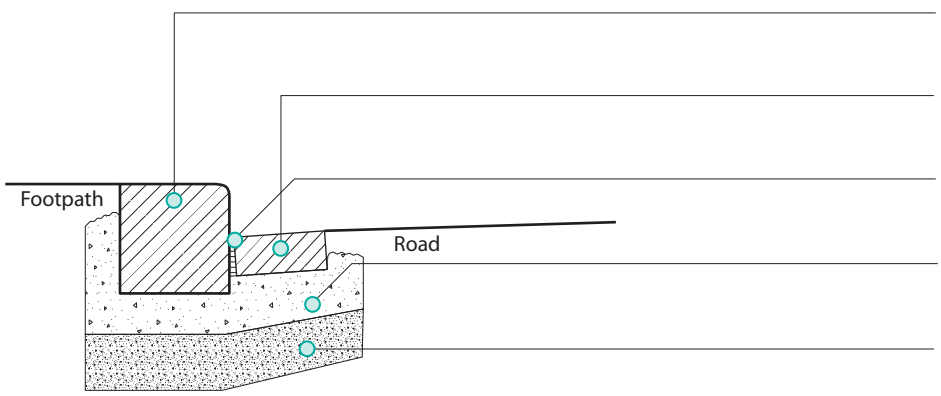
Paving,Kerbs & Gutters

Kerb & Channel

– new sawn bluestone



- Sawn bluestone kerbstone with bull nose
- Sawn bluestone gutterstone or precast concrete
- Stagger joints in kerb and gutter
- 10mm mortar joint between kerb and gutter
- Tight mortarless butt joints



- Sawn bluestone kerbstone with bull nose
- Sawn bluestone gutterstone or precast concrete
- Grey coloured cement mortar as per Y.C.C. standards
- 75mm min. depth 25MPa concrete bedding and backing
- 100mm min. depth 4% cement treated crushed rock (class2)

NEW SAWN BLUESTONE KERB (not to scale)

CITY OF YaRRA

Technical Notes

4.4.4

Paving,Kerbs & Gutters

Kerb & Channel
– in-situ concrete

Application

In many areas if the City of Yarra the original bluestone kerb and channel has been replaced with in-situ concrete. In heritage areas this is to be reinstated with bluestone over time as reconstruction is required. In non heritage areas in-situ concrete will be retained, particularly in industrial areas. Some Heritage Overlay areas may have significant early concrete kerb and channels. Check with the Statement of Significance for the area and consult with the City of Yarra Heritage Advisor before any major works.

Known Supplier

Not applicable

Materials

Kerb with integral channel. Where possible use a 300mm wide kerb gutter to maintain a consistent scale with the bluestone kerbs in other streets. Standard profiles should include barrier, semi-mountable and mountable kerbs for use in different traffic conditions.
All concrete should be made with bluestone aggregate and tinted grey using one 25kg bag of charcoal colouring per cubic metre of concrete.

Installation

Refer to the Yarra Standard details and the relevant Australian Standards (AS 1428) .

Refer to

- Kerb & Channel page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Detail
- City of Yarra, Road Construction Materials Policy adopted 2004

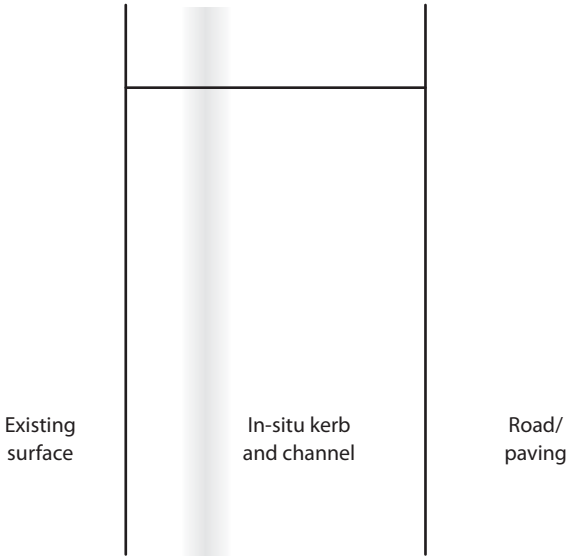
CITY OF YaRRA

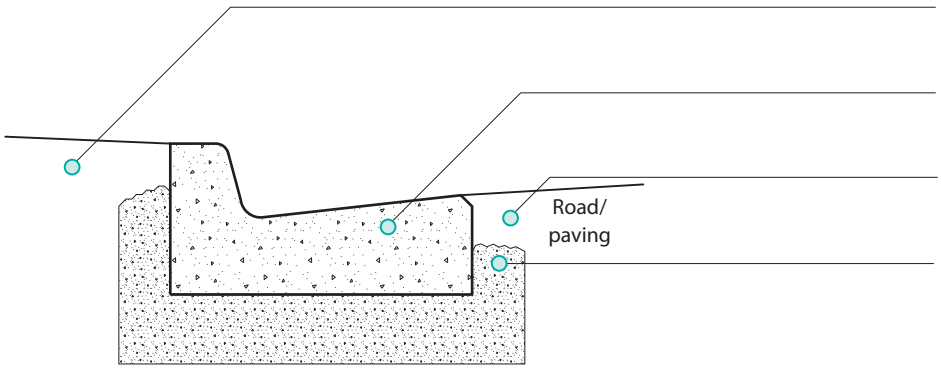
Technical Notes

4.4.4

Paving,Kerbs & Gutters

Kerb & Channel – in-situ concrete





Reinstate to match existing surface

Charcoal coloured cement as per Y.C.C. standards

Reinstate paving or road surface to match

100mm min. depth 4% cement treated crushed rock (class2)

IN-SITU CONCRETE KERB (not to scale)

CITY OF YaRRA

Technical Notes

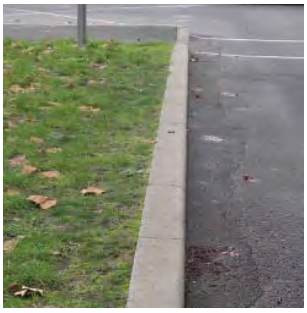
4.4.5

Paving,Kerbs & Gutters

Median Kerb – precast

Application

Precast exposed aggregate kerbs are preferred for medians in wider streets and large traffic islands, except in major boulevards, (Victoria, Alexandra and Queens Parades).



Known Supplier

Not applicable

Materials

The standard profile is a barrier kerb, 200mm wide with a 25mm bull nose on the exposed edge. The pre-cast concrete units should use an exposed bluestone aggregate. They should not be used where they physically join with existing bluestone kerbs. Use in-situ concrete in matching profile and finish to form non standard radii (e.g in roundabouts and traffic islands) .

In some heritage areas sawn bluestone may be required for traffic islands and roundabouts.

Installation

Refer to the Yarra Standard details and the relevant Australian Standards (AS 1428)
City of Yarra Road Construction Materials Policy adopted 2004

Refer to

- Median Kerb page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services information
- Yarra Standard Detail

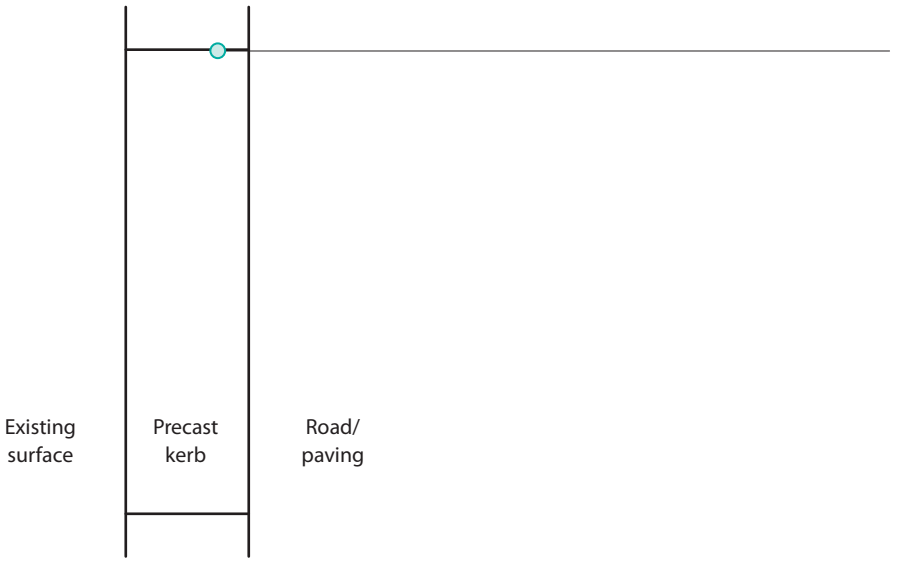
CITY OF YaRRA

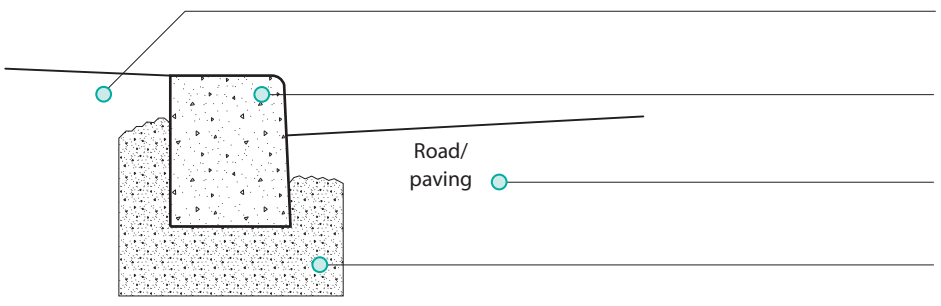
Technical Notes

4.4.5

Paving,Kerbs & Gutters

Median Kerb – precast





PRECAST CONCRETE CURB (not to scale)

CITY OF YaRRA

Technical Notes

4.4.6

Paving,Kerbs & Gutters

Pedestrian Kerb Crossing – flush

Application

Kerb crossings must be provided to enable access for people with disabilities, cyclists, prams and delivery trolleys. However, sloping surfaces on kerb ramps can be hazardous or the footpath may not be wide enough to accommodate a ramp. The preferred design for pedestrian access, particularly in activity centres, is to provide a crossing which is level with the footpath in preference to using kerb ramps. Flush crossings will generally be used in activity centres, particularly for crossings on narrow side streets.

This is a traditional detail in the Inner Melbourne area and often the only feasible way to provide access for people with disabilities where footpaths are too narrow for standard kerb ramps. The constant level footpath also prioritises pedestrian access, in contrast to normal crossings which give priority to vehicular movement.

In certain locations adjacent to shopping streets the flush crossing can be extended further down the side street and developed as a shared zone.

Known Supplier

Not applicable

Materials

Flush pedestrian crossings should be constructed from the same material used for the footpath to reinforce the dominance of the pedestrian movement. Usually this will be asphalt, concrete or sawn bluestone.

Installation

Refer to Yarra Standard Details

Refer to

- Australian Standards (AS1428)
- Pedestrian Kerb Crossing page 2 of 2 – detail information
- Contact Dial Before You Dig on 1100 for all underground services

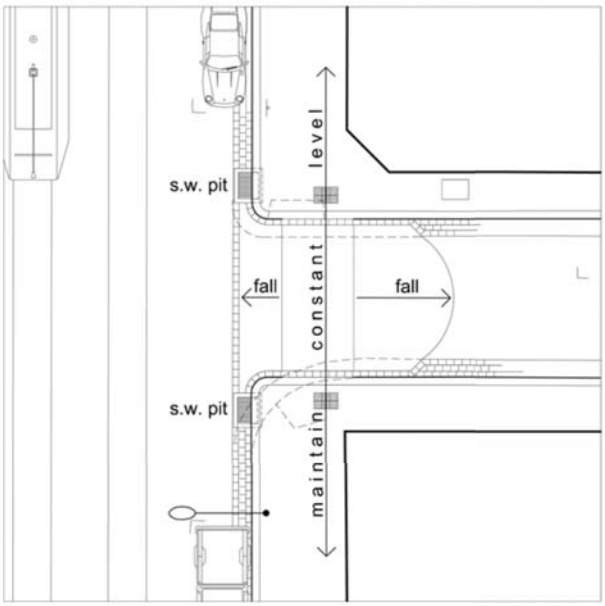
CITY OF YaRRA

Technical Notes

4.4.6

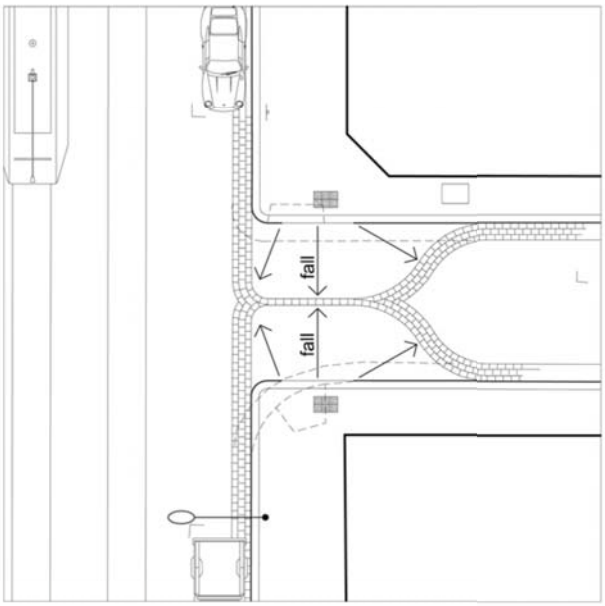
Paving,Kerbs & Gutters

Pedestrian Kerb Crossing
– flush



A preferred flush pedestrian crossing design, with stormwater drains used to intercept runoff uphill of the intersection. Note how this maintains a straight path of pedestrian travel following the building line. A 600mm x 900mm (min.) pad of warning (button type) TGSIs should be installed as shown at these crossings. The length of the ramped roadway leading up to the crossing needs to be tailored to site conditions to ensure adequate undercarriage clearance for vehicles.

FLUSH PEDESTRIAN CROSSING (not to scale)



An alternative 'flush' crossing design allowing stormwater to drain through the intersection. This approach should be used where pits are not feasible, although it may require extensive reconstruction of the road surface to lower its level to allow surface drainage through. Note the diversion of the wide pitcher channel and reduction to a single pitcher channel at the crossing. The shape and proportions of the channel alignment may need to vary in response to kerb heights and surrounding slopes.

FLUSH PEDESTRIAN CROSSING ALTERNATIVE (not to scale)

CITY OF YaRRA

Technical Notes

4.4.7

Paving,Kerbs & Gutters

Pedestrian Kerb Crossing
– ramp

Application

In many locations flush kerbs cannot be accommodated because of drainage requirements, cost of altering road levels or other engineering reasons, and ramps are required. Ramps should align with the direction of travel required to cross the street and with a path of travel following the building line. The preferred slope is 1:20 but the absolute maximum is 1:8. Create gentle transitions between surfaces at different angles to avoid trip hazards. Side slopes must be no steeper than the maximum slope of the ramp itself. The absolute minimum width is 1200mm but 1500mm or wider is preferred. Ramps should not be provided where they do not link directly with accessible crossings which follow the most direct desire line for pedestrians.

Known Supplier

Not applicable

Materials

The ramp pavement, kerb and channel should match adjoining details, usually asphalt, concrete or sawn bluestone. At corners where materials in the two streets differ, extend the higher quality material around the corner.

In certain locations inlay material of a contrasting colour can be used to delineate the change in slope at the start of the ramp.

Installation

Refer to Yarra Standard Details and the relevant Australian Standards (AS 1428)
City of Yarra Road Construction Materials Policy adopted 2004

Refer to

- Pedestrian Kerb Crossing page 2 of 2 – detail information
- Contact Dial Before You Dig 1100 for all underground services information
- Local Area Traffic Management plans (LATM)

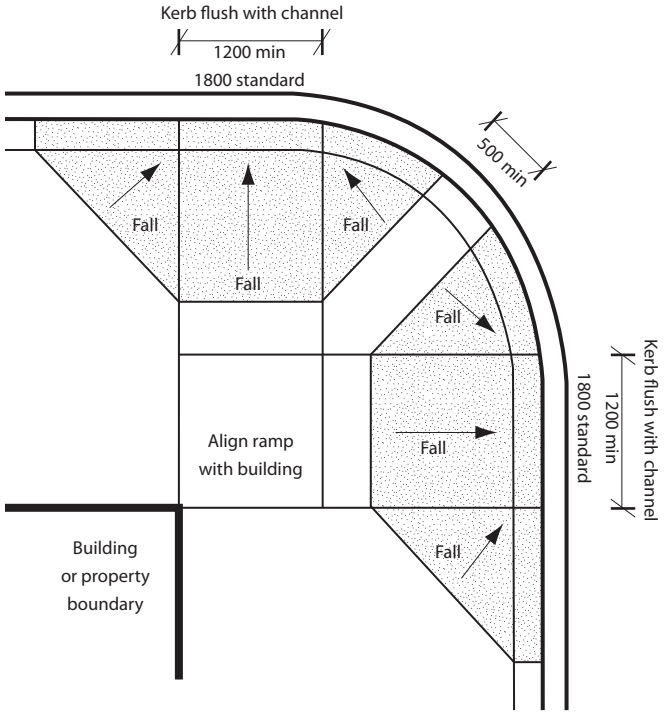
CITY OF YaRRA

Technical Notes

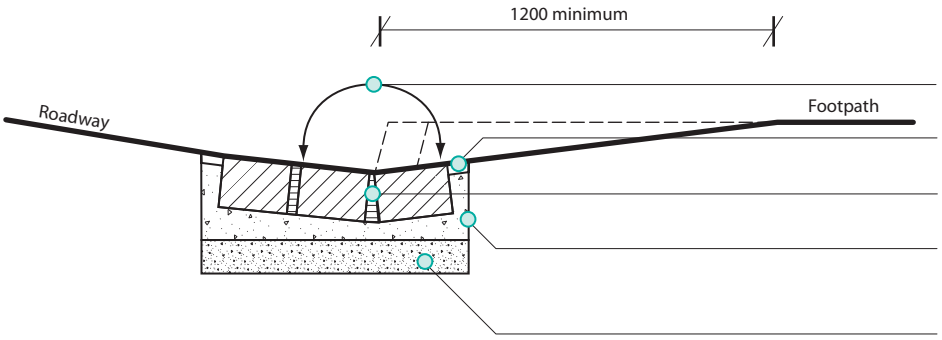
4.4.7

Paving,Kerbs & Gutters

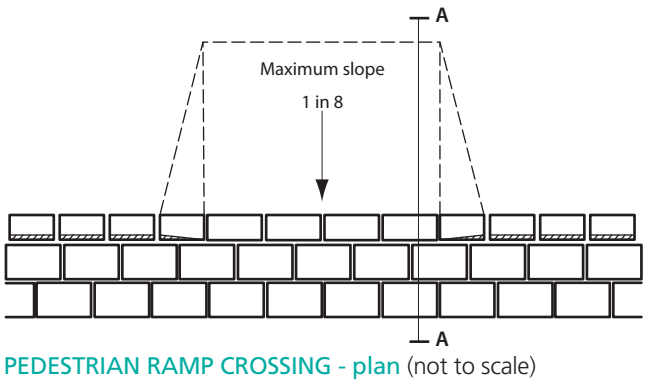
Pedestrian Kerb Crossing – ramp



PEDESTRIAN RAMP CROSSING - layout (not to scale)



PEDESTRIAN RAMP CROSSING - section AA (not to scale)



PEDESTRIAN RAMP CROSSING - plan (not to scale)

CITY OF YaRRA

Technical Notes

4.4.8

Paving,Kerbs & Gutters

Vehicle Crossings
– heritage and non heritage

Application

Footpaths are often crossed by lanes, driveways and access ramps. Excessive crossings in a street can detract from the uniformity and simplicity of the street layout, reducing on street parking, as well as reducing pedestrian amenity. Kerbs and crossings should be of simple design and use a minimum range of materials.
Bluestone pitcher crossovers are part of the heritage street fabric of Yarra. However where they cross footpaths they may restrict access for the disabled. Bringing driveways up to footpath level signals to drivers that they are crossing a pedestrian priority zone while making the footpath more accessible for pedestrians, especially those with limited mobility.

Known Supplier

Not applicable

Materials

In heritage areas:
Reconstruct existing asphalt or concrete vehicle crossings in asphalt with the layback constructed in the same material as the adjoining kerb and channel. In most cases this is bluestone. In streets where radial dressed bluestone is used new crossings should use new sawn bluestone.
Reconstruct the paving of existing bluestone crossings with an asphalt strip, preferably placed over the existing bluestone pitcher surface up to 1.8 metres wide adjacent to the building line. The remainder of the crossing is to be reconstructed in bluestone pitchers or remain in the original bluestone pitchers.

In non heritage areas:
For new crossings or when reconstructing existing vehicle crossings generally match the material of the footpath with the layback constructed in the same material as the adjoining kerb and channel. Reconstruct existing bluestone crossings with asphalt or concrete to match the footpath material. A concrete base with asphalt overlay may also be used.

Installation

Refer to Yarra Standard details and the relevant Australian Standards (AS 1428)
City of Yarra Road Construction Materials Policy

Refer to

- Contact Dial Before You Dig on 1100
- Vehicle Crossings page 2 of 2 – detail information

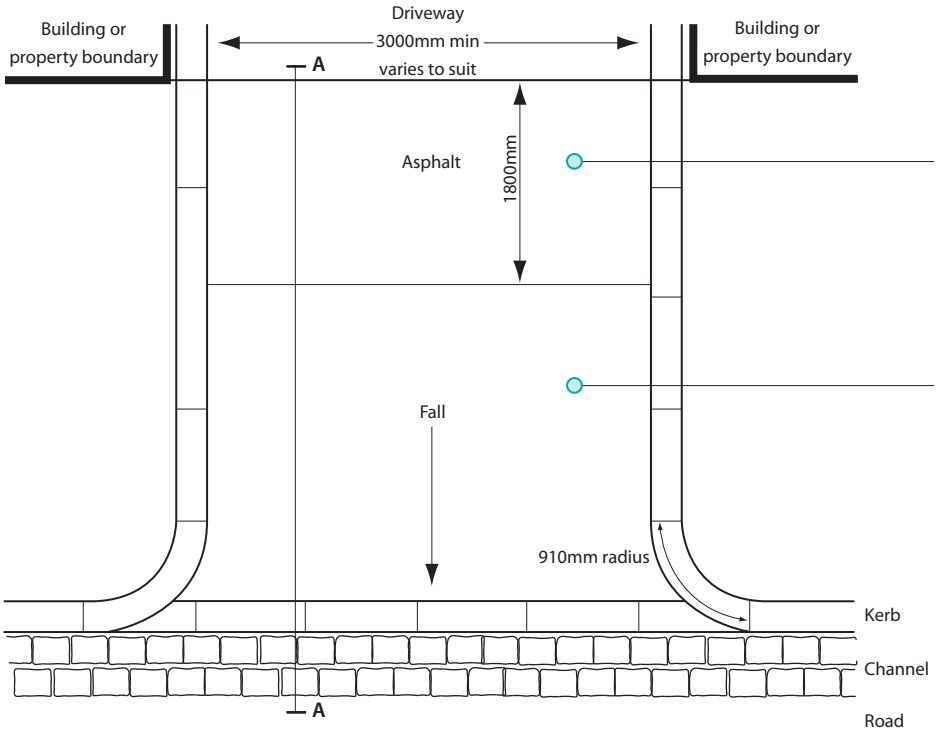
CITY OF YaRRA

Technical Notes

4.4.8

Paving,Kerbs & Gutters

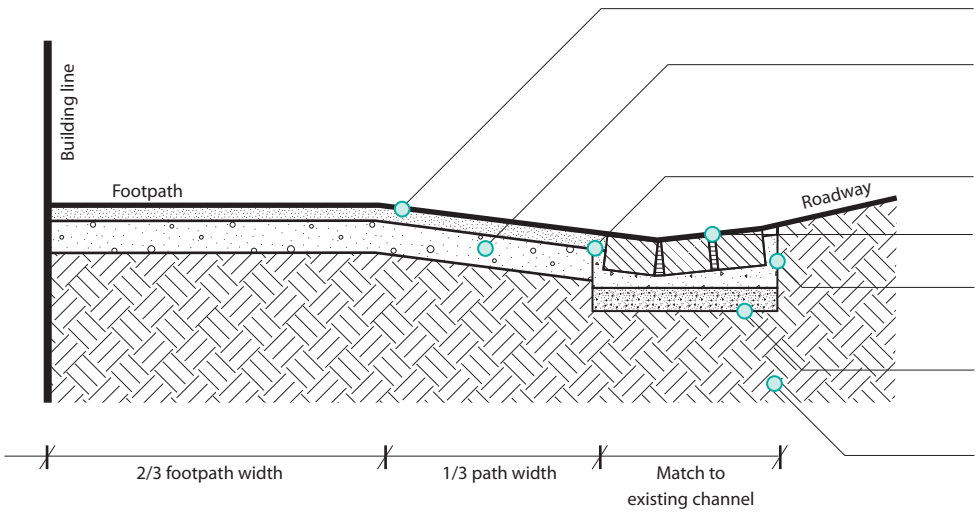
Vehicle Crossings
– heritage and non heritage



1800mm asphalt laid over existing bluestone pitchers in heritage areas

Retained bluestone pitches in heritage area

ASPHALT VEHICLE CROSSING – layout (not to scale)



100mm thick asphalt

Class 2 wetmix
150mm residential crossings
200mm industrial crossing

Finish 100mm below surface

Grey coloured cement slurry

50mm min.depth 25MPa concrete (low water content)

100mm min depth 4% cement treated crushed rock (class 2)

Sub-base

ASPHALT VEHICLE CROSSING – section AA (not to scale)

CITY OF YaRRA

Technical Notes

4.4.9

Paving,Kerbs & Gutters

Pit Grates

Application

The same standard grate pit cover and strip drain (shown above) should be used consistently throughout the municipality for all new grates. In Heritage Overlay areas, where there are kerb and channels with historical siginificance, the drains and historic grates and bluestone surrounds should be preserved.

Known Supplier

Not applicable

Materials

Galvanised steel

Installation

Install to meet relevant Australian Standards.

Refer to

- Contact Dial Before You Dig on 1100 for all underground services information
- Pit Grates page 2 of 2 – detail information
- Road Management Plan
- Yarra Standard Details

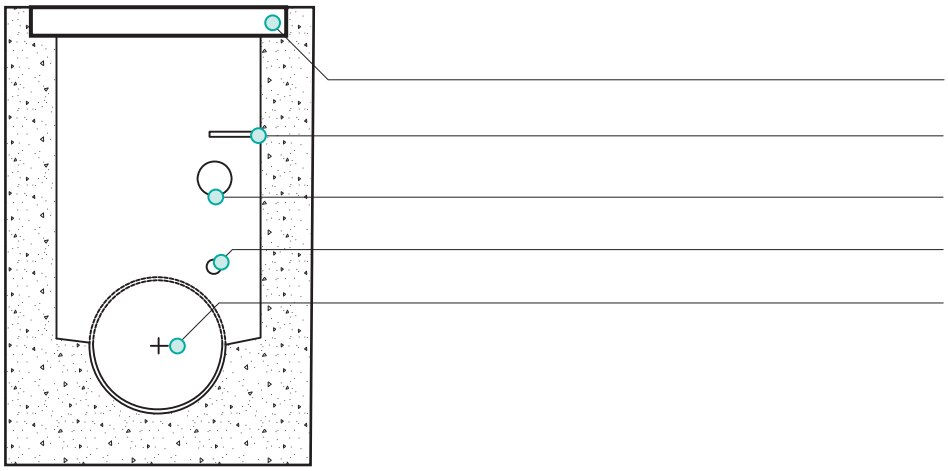
CITY OF YaRRA

Technical Notes

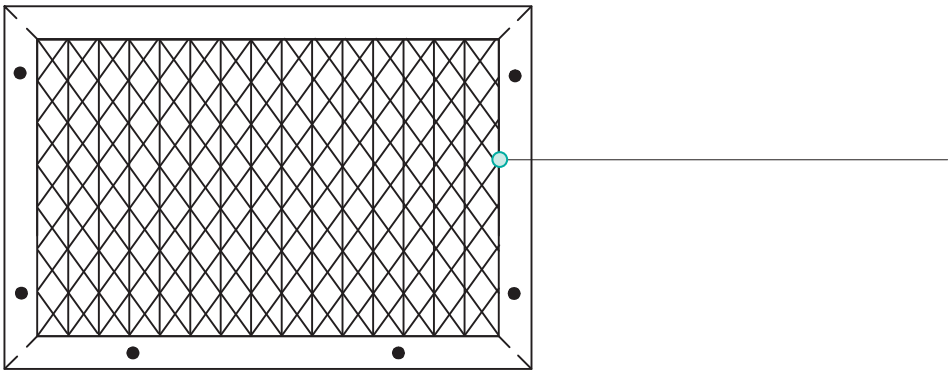
4.4.9

Paving,Kerbs & Gutters

Pit Grates

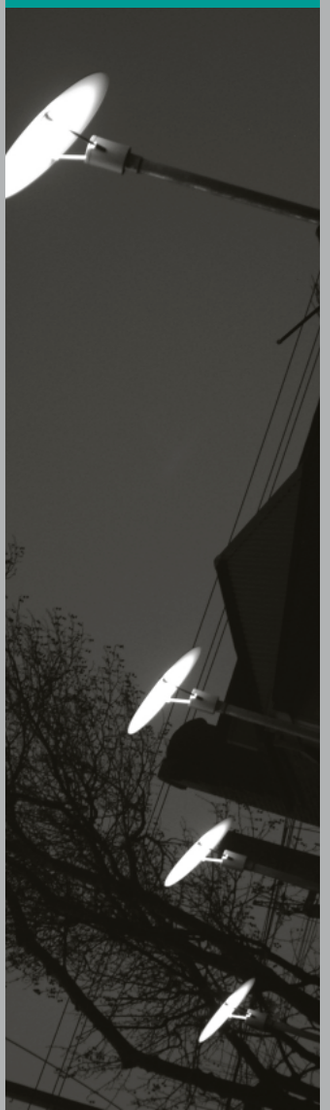


PIT GRATE - SECTION (not to scale)



PIT GRATE – GRATE PLAN (not to scale)

CITY OF YaRRA



Church St Precinct 350m, 5mins
Chapel St Precinct 800m, 12mins
Bridge Rd Precinct 700m, 9mins

CITY OF YaRRA

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